



# THE PUZZLING SIDE OF CHESS

Jeff Coakley

## SIXTEEN PIECES

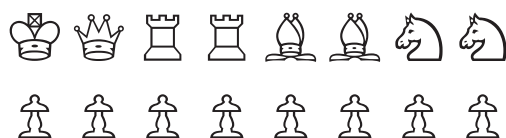
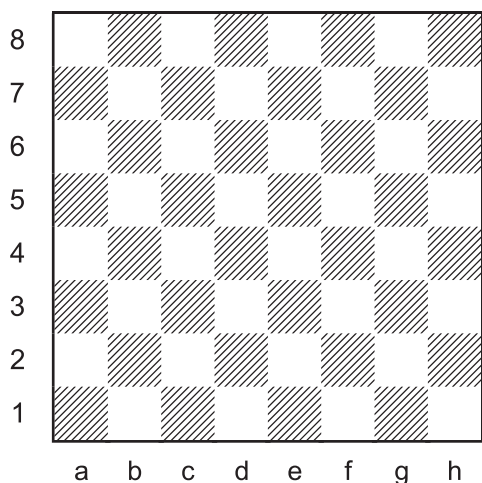
number 36

May 21, 2013

This column features four puzzles using only the sixteen white pieces.

In the first two problems, the starting point is an empty board. The task is to *construct* a position that achieves the stipulated goal.

The two bishops must be placed on opposite-coloured squares. Pawns may be placed on the same file.



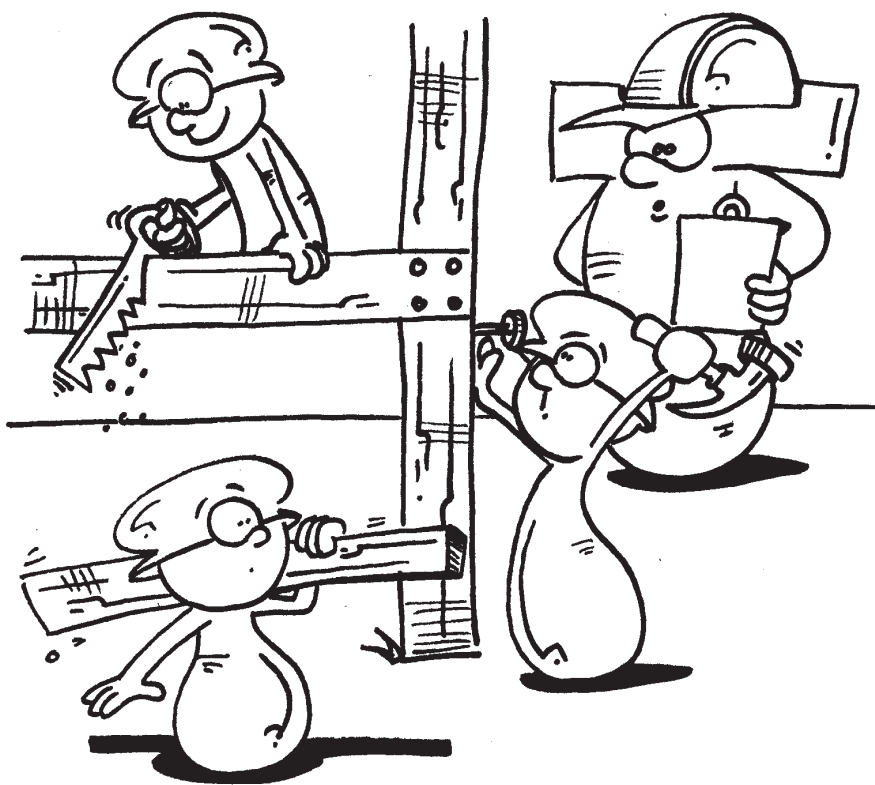
We begin with one of my favourite chess puzzles. It's quite challenging, but it will provide a sense of accomplishment once you find a solution. Like finishing a jigsaw puzzle. Good luck!

### Sixteen Pieces 01 (defensive loop)

Place the sixteen pieces on the board so that each piece is defended exactly once and each piece defends exactly one other piece.

The defensive chain should form a continuous *loop*. The first piece guards the second piece; the second guards the third; the third guards the fourth; ...; and the sixteenth guards the first.

For other defensive loop problems, see columns 15, 18, 24.

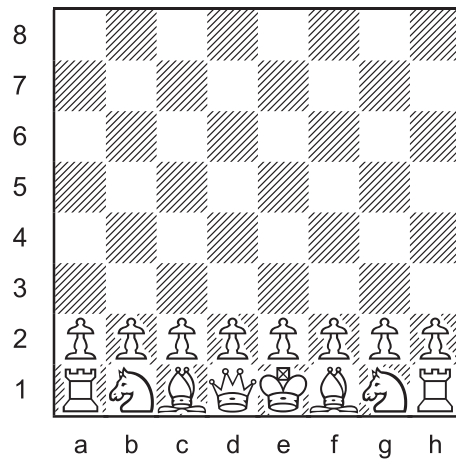


### Sixteen Pieces 02 (maximum moves)

Place the sixteen pieces on the board so that they have the most possible moves.

- 2a.** The advance of a pawn to the 8th rank counts as a single move.
- 2b.** The advance of a pawn to the 8th rank counts as four separate moves, one for each type of promoted piece: =Q, =R, =B, =N. This is the normal way that *possible moves* are counted in chess problems.

For the next two puzzles, the sixteen pieces stand in the initial array. White has twenty possible moves in this position: sixteen by pawns and four by knights.



**Sixteen Pieces 03** (maximum moves)

**3a.** Which first move gives White the most possible moves on the following turn?

**3b.** Make two moves so that White has the most possible moves in the resulting position.

It's easy to see where this is going. In each part of the puzzle, White gets one additional turn (from the initial array) to maximize the number of possible moves in the resulting position. As we know from the previous puzzle, the upper limit is over a hundred moves. But it will take more than eight turns to get that high.

The solutions were determined without computer assistance, so there may be room for improvement. A table is included that shows the maxima for each number of turns (1-14). Please let me know if you break a "record".

**3c.** Make three moves to maximize the possible moves in the resulting position.

**3d.** Make four moves . . .

**3e.** Make five moves . . .

**3f.** Make six moves . . .

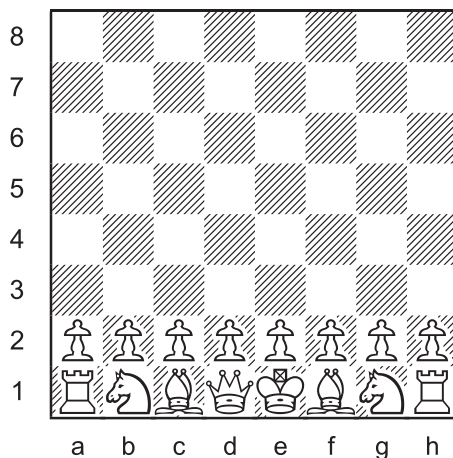
**3g.** Make seven moves . . .

**3h.** Make eight moves . . .

**3i.** How long can you continue to raise the count with every new turn?

The final puzzle is probably more interesting. The goal is to minimize the number of possible moves. This is surprisingly difficult.

In puzzle 03, the number of possible moves was increased with each additional turn. Puzzle 04 is different. The number of possible moves cannot always be decreased with an additional turn. The stipulation is modified accordingly.



### **Sixteen Pieces 04** (minimum moves)

There are three different moves on the first turn that reduce the number of possible moves to nineteen: 1.a3, 1.f3, and 1.h3. By playing any two of those moves, the number is lowered to eighteen. By playing all three, the pieces are left with seventeen possible moves.

**4a.** How many moves are needed from the initial array to reduce the number of possible moves in the resulting position to sixteen?

When I first tried to figure out part A, I didn't expect it to be so tough. I soon discovered that every additional step downward was just as hard.

The full task in each part of this puzzle is to determine how many turns are required to decrease the amount of possible moves to the next lower number.

Of course, it can also be fun to simply find any sequence of moves that achieves the target number, without worrying about how many turns it takes.

A table in the solution section gives the minimal turns needed for each number of possible moves (10-20). As with puzzle 03, the solutions were not generated by computer, so feel free to set a new mark.

**4b.** How many moves are needed from the initial array to reduce the number of possible moves in the resulting position to fifteen?

- 4c. How many moves are needed from the initial array to reduce the number of possible moves in the resulting position to fourteen?
- 4d. How many . . . to thirteen?
- 4e. How many . . . to twelve?
- 4f. How many . . . to eleven?
- 4g. How many . . . to ten?
- 4h. How low can you go!?
- 4i. Is zero possible?!

Entries for the *Chess Cafe Puzzlers Cup* are rolling in now. The winning puzzles will be presented here on *The Puzzling Side of Chess* in late November. Have you sent in your composition yet? The deadline is Halloween. Trick or treat!

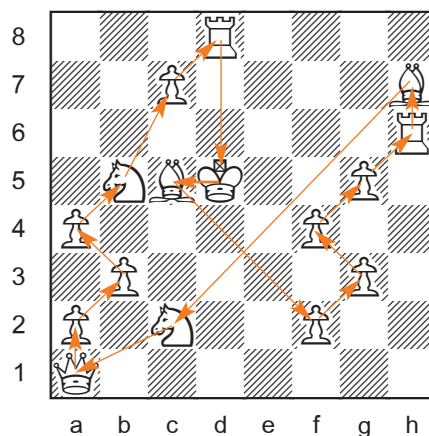
## SOLUTIONS

*PDF hyperlinks.* You can advance to the solution of any puzzle by clicking on the underlined title above the diagram. To return to the puzzle, click on the title above the solution diagram.

### Sixteen Pieces 01 (defensive loop)

J. Coakley 2010

*Winning Chess Puzzles For Kids Volume 2*



There are thousands of solutions to this puzzle. Here is another one:

Kc2 Qh1 Ra6 Rf8 Bb6 Bf5 Nd2 Nf2 b5 c4 g3 g5 g7 h2 h4 h6

See next page.

Non-Loop Version. The idea for a defensive loop problem came from the book *Mathematical Diversions* (1963) by James Hunter and Joseph Madachy. Their stipulation was to “arrange the sixteen pieces so that each one was defended exactly once” without any requirement for a single “loop”. This was their solution:

Kd1 Qc1 Rg8 Rh2 Bg3 Bh1 Na7 Nb7 a5 a6 b5 b6 e4 d5 e6 f7

Notice that the king and queen defend each other and the other fourteen pieces make a separate loop.

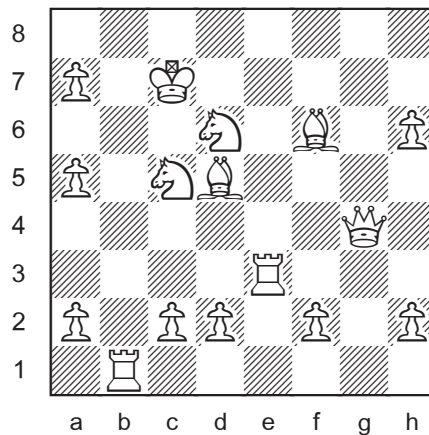
### **Sixteen Pieces 02a** (maximum moves)

J. Coakley 2013

*ChessCafe.com*

version of William Cross 1967

*Problem (issue 05)*



White has 110 possible moves.

(K7 Q23 R28 B23 N16 p13)

The pawn advance a7-a8 counts as a single move.

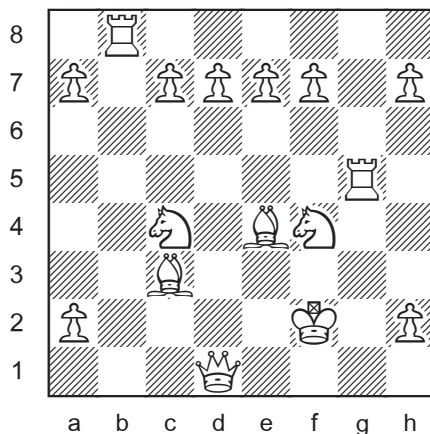
In the original problem by British composer William Cross (1904-1974), there was a black king on f8 and the a7 square was vacant. It is the world record for most white moves (109) in a legal position without any promoted pieces and without any pawn promotions.



### **Sixteen Pieces 02b** (maximum moves)

Nenad Petrovic 1949

*Die Schwalbe*



White has 122 possible moves.

(K8 Q19 R28 B23 N16 p28)

Each pawn advance to the 8th rank (a8, c8, d8, e8, f8, h8) counts as four separate moves, one for each type of promoted piece (=Q, =R, =B, =N).

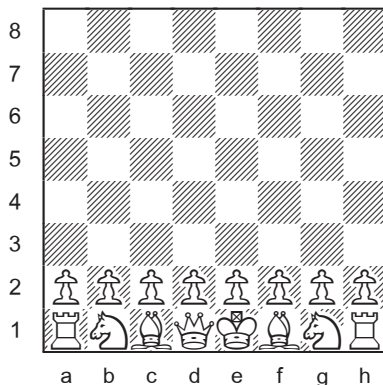
Croatian composer Nenad Petrovic (1907-1989) was a master of construction tasks, with a large number of records in various categories. He is also well known in the problem community as the author of the original *Codex for Chess Composition* (Piran 1958).

His solution for the sixteen pieces task has also been published with a black king on h6, making it a “legal position” (*Chess Ultimates* 1970).

### **Sixteen Pieces 03** (maximum moves)

J. Coakley 2013

*ChessCafe.com* 2013



3a. one turn

After 1.e4 or 1.e3, White has **30** possible moves.

K1 Q4 R0 B5 N5 p15

(1.d4 = 28; 1.d3 = 27; 1.Nf3 et al = 21)

3b. two turns

1.e3 2.Qg4 47 possible moves

K2 Q21 R0 B5 N5 p14

(1.e4 2.Qh5 = 46;

1.e4 2.d4 = 38)

3c. three turns

1.e4 2.d4 3.Qh5 52 possible moves

K3 Q19 R0 B10 N6 p14

(1.e3 2.Qg4 3.Nc3 = 51;

1.e3 2.Qg4 3.Bb5 = 50)

3d. four turns

1.e4 2.d4 3.Qh5 4.Bc4 57 possible moves

K4 Q19 R0 B15 N6 p13

(1.e3 2.Qh5 3.Nc3 4.Bc4 = 56;

1.e4 2.d4 3.Qh5 4.Bf4 = 56)

3e. five turns

1.e4 2.d4 3.Qh5 4.Bc4 5.Bf4 61 possible moves

K4 Q19 R0 B20 N6 p12

(1.e4 2.d4 3.Qh5 4.Bc4 5.Nc3 = 60;

1.e4 2.d4 3.Qh5 4.Bc4 5.Nf3 = 57 including castling)

3f. six turns

1.e4 2.d4 3.Qh5 4.Bc4 5.Bf4 6.Nc3 67 possible moves

K5 (includes castling) Q19 R3 B20 N9 p11

(1.e4 2.e5 3.e6 4.e7 5.e8=Q 6.Qg4 = 66;

1.d4 2.d5 3.d6 4.d7 5.d8=Q 6.Qd5 = 65)

3g. seven turns

1.d4 2.d5 3.d6 4.d7 5.d8=Q 6.e4 7.Qh5

72 possible moves

K3 Q40 R0 B10 N6 p13

Without a pawn promotion, the maximum is 69.

(1.e4 2.d4 3.Qh5 4.Bc4 5.Bf4 6.Nc3 7.a4 = 69;

1.e4 2.d4 3.Qh5 4.Bc4 5.Bf4 6.Nc3 7.a3 = 69;

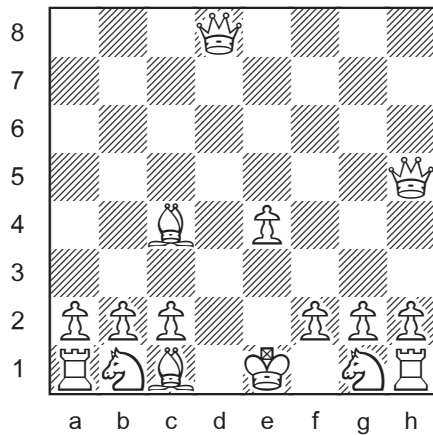
1.d4 2.Bf4 3.e3 4.Qh5 5.Bc4 6.Nc3 7.Bd6 = 69;

1.e4 2.e5 3.e6 4.e7 5.e8=Q 6.Qh5 7.d4 = 69)



### 3h. eight turns

1.d4 2.d5 3.d6 4.d7 5.d8=Q 6.e4 7.Qh5 8.Bc4  
77 possible moves  
K4 Q40 R0 B15 N6 p12



Without a pawn promotion, the maximum is 73.

(1.d4 2.d5 3.d6 4.d7 5.d8=Q 6.e4 7.Qh5 8.Be3 = 76;  
1.d4 2.d5 3.d6 4.d7 5.d8=Q 6.e4 7.Qh5 8.Nc3 = 74;  
1.e4 2.d4 3.Qh5 4.Bc4 5.Bf4 6.Nc3 7.Nf3 8.Kd2 = 73;  
1.e4 2.d4 3.Qh5 4.Bc4 5.Bf4 6.Nc3 7.Nf3 8.Ke2 = 73)

### 3i. Up, up, and away!

#### nine turns

1.d4 2.d5 3.d6 4.d7 5.d8=Q 6.e4 7.Qh5 8.Bc4 9.Be3  
81 possible moves  
K4 Q40 R0 B19 N6 p12  
(also 81 with 9.Bf4)

Without a pawn promotion, the maximum is 75.

(1.e4 2.d4 3.Qh5 4.Bc4 5.Bf4 6.Nc3 7.Nf3 8.Kd2 9.a4 = 75)

#### ten turns

1.d4 2.d5 3.d6 4.d7 5.d8=Q 6.e4 7.Qh5 8.Bc4 9.Be3 10.Nc3  
87 possible moves  
K5 Q40 R3 B19 N9 p11  
(also 87 with 9.Bf4)

Without a pawn promotion, the maximum is 77.

(1.d4 2.Bf4 3.e3 4.Qh5 5.Bc4 6.Nc3 7.Bd6 8.Nf3 9.Kd2 10.a4  
= 77)

eleven turns

1.d4 2.d5 3.d6 4.d7 5.d8=Q 6.e4 7.Qh5 8.Bc4 9.Be3  
10.Nc3 11.Qd6

90 possible moves

K5 Q43 R3 B19 N9 p11

Without a pawn promotion, the maximum is 80.

(1.d4 2.Bf4 3.e3 4.Qh5 5.Bc4 6.Nc3 7.Bd6 8.Nf3 9.Kd2 10.Qe8  
11.Ng5 = 80)

twelve turns

1.d4 2.d5 3.d6 4.d7 5.d8=Q 6.e4 7.Qh5 8.Bc4 9.Be3  
10.Nc3 11.Qd6 12.a4

92 possible moves

K5 Q43 R5 B20 N9 p10

Without a pawn promotion, the maximum is 82.

(1.d4 2.Bf4 3.e3 4.Qh5 5.Bc4 6.Nc3 7.Bd6 8.Nf3 9.Kd2 10.Qe8  
11.Ng5 12.h4 = 82)

thirteen turns

1.d4 2.d5 3.d6 4.d7 5.d8=Q 6.e4 7.Qh5 8.a4 9.a5 10.a6  
11.a7 12.a8=Q 13.Qd6

95 possible moves

K3 Q59 R6 B10 N6 p11

Without a pawn promotion, the maximum is 84.

(1.d4 2.Bf4 3.e3 4.Qh5 5.Bc4 6.Nc3 7.Bd6 8.Nf3 9.Kd2 10.Qe8  
11.Ng5 12.a4 13.a5 = 84)

fourteen turns

1.d4 2.d5 3.d6 4.d7 5.d8=Q  
6.e4 7.Qh5 8.a4 9.a5 10.a6  
11.a7 12.a8=Q 13.Qd6 14.Bc4

101 possible moves

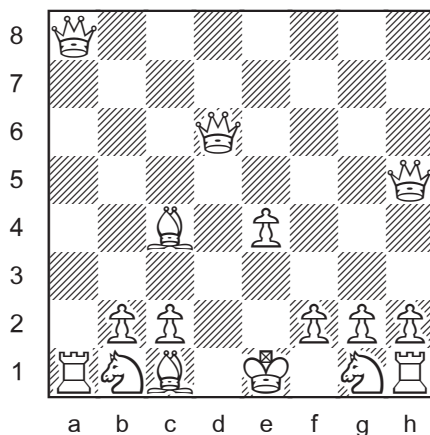
Hurray!

K4 Q59 R6 B16 N6 p10

See diagram next page.

Without a pawn promotion, the maximum is 86.

(1.d4 2.Bf4 3.e3 4.Qh5 5.Bc4 6.Nc3 7.Bd6 8.Nf3 9.Kd2 10.Qe8  
11.Ng5 12.a4 13.a5 14.h4 = 86)



## SIXTEEN PIECES

*current records*

TURN FROM ARRAY	MAXIMUM POSSIBLE MOVES	WITH PROMOTIONS
0	20	
1	30	
2	47	
3	52	
4	57	
5	61	
6	67	
7	69	72
8	73	77
9	75	81
10	77	87
11	80	90
12	82	92
13	84	95
14	86	101

Continuing from the diagram above, 15.Be3 (105) 16.Nc3 (112)  
 17.Nf3 (113) 18.Ke2 (116) 19.Qb7 (118) 20.Qe8 (119) 21.h3 (121)  
 22.Ra5 (123) 23.Qg7 (124) 24.Rha1 (125) 25.Rf5 (127).  
 End of the road.

Of course, with so many moves, making a fourth queen is sure to generate higher numbers. For example, 1.a4 ... 5.a8=Q ... 10.d8=Q ... 15.g8=Q 16.e4 17.Qh5 18.Qb7 19.Qd6 20.Ra5 is already up to 122.

## **Sixteen Pieces 04** (minimum moves)

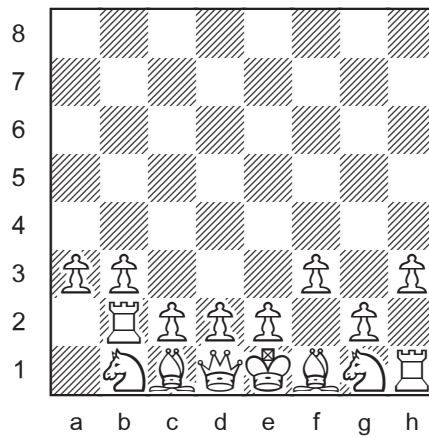
J. Coakley 2013

ChessCafe.com

*[After this column was originally published, improvements were found for parts 4c, 4d, and 4h. The new positions are included here.]*

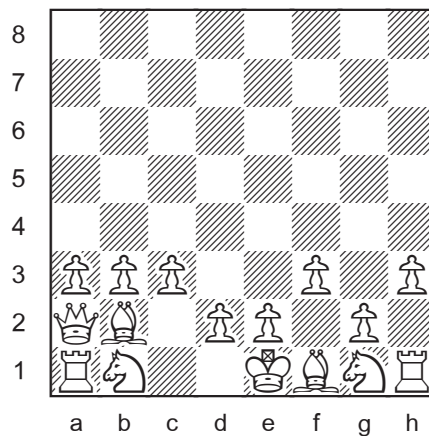
*Special thanks to Norwegian IM Geir Sune Tallaksen Østmoe who established records for 1 to 6 moves and provided essential ideas for further improvements.]*

### **4a.** sixteen possible moves: 6 turns



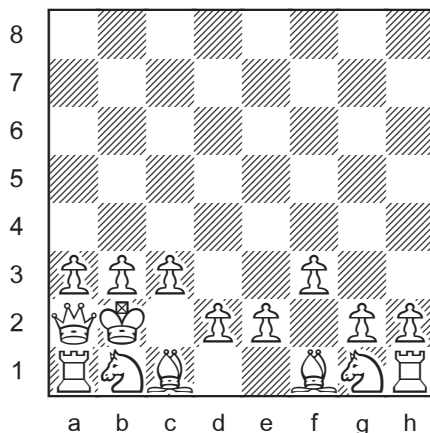
1.a3 2.b3 3.f3 4.h3 5.Ra2 6.Rb2  
K1 Q0 R2 B0 N1 p12

### **4b.** fifteen possible moves: 8 turns



1.a3 2.b3 3.c3 4.f3 5.h3 6.Qc2 7.Qa2 8.Bb2  
K2 Q0 R1 B1 N0 p11

**4c.** fourteen possible moves: 9 turns



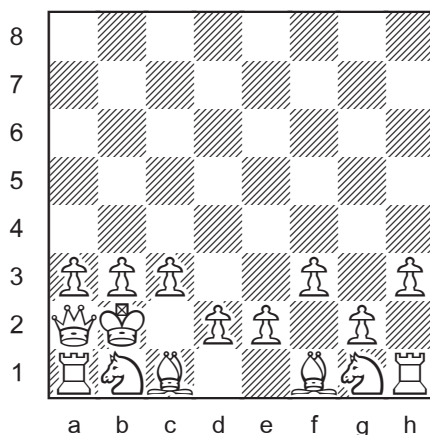
1.a3 2.b3 3.c3 4.f3 5.Qc2 6.Qa2 7.Kd1 8.Kc2 9.Kb2  
K1 Q0 R0 B0 N1 p12

This breaks the old mark by one turn.

[1.a3 2.c3 3.f3 4.g3 5.h3 6.Rh2 7.Rf2 8.Bg2 9.Kf1 10.Qe1]

[The improved solution for 4c was given anonymously on a forum at [www.chess.com](http://www.chess.com). Thanks to the reader who let me know about that post. I used the same idea to improve 4d.]

**4d.** thirteen possible moves: 10 turns

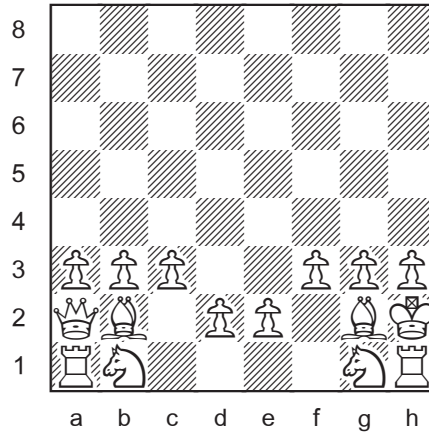


1.a3 2.b3 3.c3 4.f3 5.h3 6.Qc2 7.Qa2 8.Kd1 9.Kc2 10.Kb2  
(same as 4c with h3 added)  
K1 Q0 R1 B0 N0 p11

This breaks the old mark by one turn.

[1.a3 2.b3 3.c3 4.f3 5.h3 6.Qc2 7.Qa2 8.Bb2 9.Kf2 10.Kg3 11.Kh2]

**4e.** twelve possible moves: 13 turns

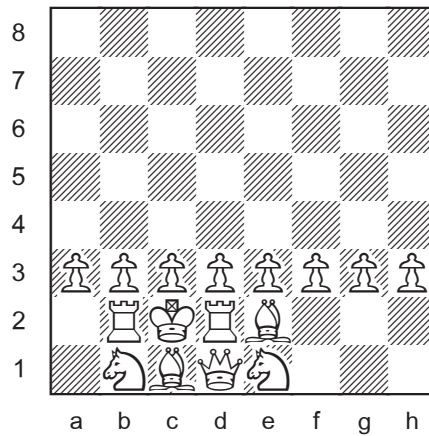


1.a3 2.b3 3.c3 4.f3 5.g3 6.h3 7.Qc2  
8.Qa2 9.Bb2 9.Kf2 10.Kg2 11.Kh2 12.Bg2

K0 Q0 R0 B2 N0 p10

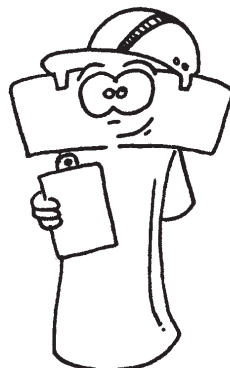
Another extension of the line in 4b.

**4f.** eleven possible moves: 17 turns

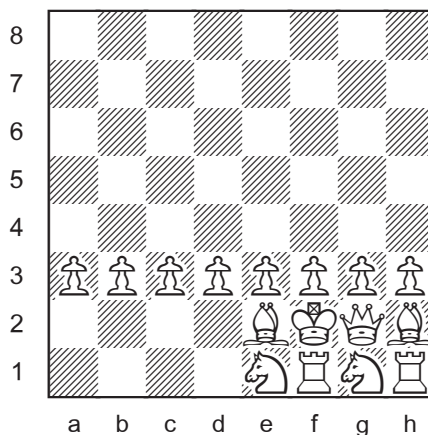


1.a3 2.b3 3.c3 4.d3 5.e3 6.g3 7.h3 8.Ra2 9.Rb2 10.Kd2  
11.Kc2 12.Nf3 13.Ne1 14.f3 15.Rh2 16.Rd2 17.Be2

K0 Q0 R1 B1 N1 p8



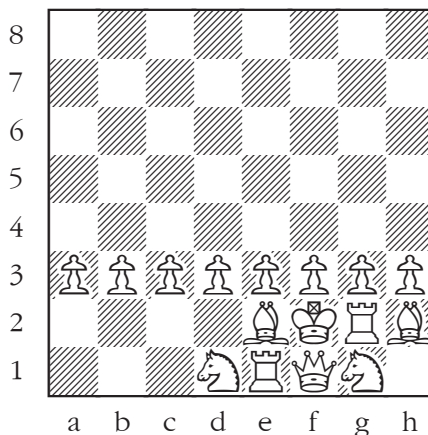
**4g.** ten possible moves: 18 turns



1.b3 2.c3 3.d3 4.f3 5.h3 6.Bf4 7.Bh2 8.e3 9.g3 10.Na3  
11.Nc2 12.a3 13.Qe2 14.Qg2 15.Kf2 16.Be2 17.Rf1 18.Ne1  
K0 Q0 R0 B1 N1 p8

We're halfway down the rabbit hole. Hang on to your heads.

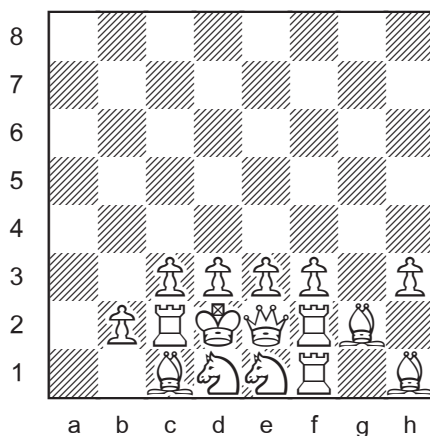
**4h.** nine possible moves: 20 turns



1.a3 2.b3 3.d3 4.f3 5.h3 6.Bf4 7.Bh2 8.e3  
9.g3 10.Ne2 11.Rg1 12.Rg2 13.Ng1 14.Kf2  
15.Be2 16.Qf1 17.Nc3 18.Re1 19.Nd1 20.c3  
K0 Q0 R0 B0 N1 p8

Nine moves is a natural boundary for this puzzle. The only way to go further down is to somehow reduce the mobility of the eight pawns. That requires a new approach.

eight possible moves: 31 turns

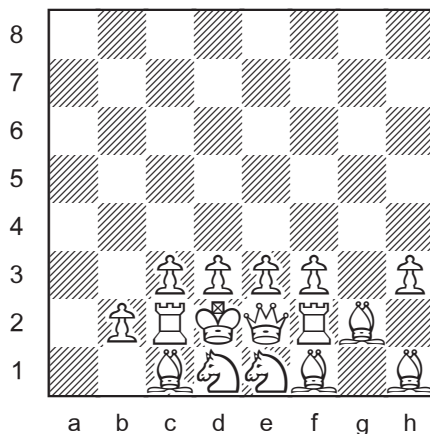


1.a4 2.a5 3.a6 4.a7 5.a8=B 6.g4 7.g5 8.g6 9.g7 10.g8=R  
 11.d3 12.e3 13.Qe2 14.Nc3 15.Nd1 16.c3 17.Bd2 18.Rc1  
 19.Rc2 20.Bc1 21.Kd2 22.Nf3 23.Ne1 24.Bh3 25.Rf1 26.Bh1  
 27.f3 28.Rg2 29.Rgf2 30.B3g2 31.h3

K0 Q0 R1 B0 N0 p7

Perhaps you already noticed that a bishop on f1 instead of a rook would eliminate another possible move. It takes one additional turn to accomplish.

seven possible moves: 32 turns



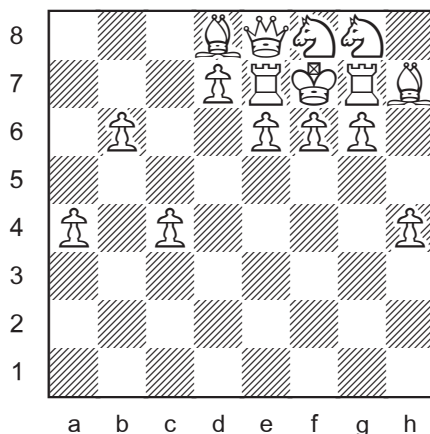
Except for promoting to a bishop on move 10, the first 23 turns are the same as above. 1.a4 2.a5 3.a6 4.a7 5.a8=B 6.g4 7.g5 8.g6 9.g7 10.g8=B 11.d3 12.e3 13.Qe2 14.Nc3 15.Nd1 16.c3 17.Bd2 18.Rc1 19.Rc2 20.Bc1 21.Kd2 22.Nf3 23.Ne1 Then we diverge.

24.Rg1 25.Bh1 26.Rg2 27.f3 28.Rf2 29.Be6 30.Beh3 31.B3g2 32.h3

K0 Q0 R0 B0 N0 p7



six possible moves: 45 turns  
 Geir Sune Tallaksen Østmoe 2013  
 ChessCafe.com

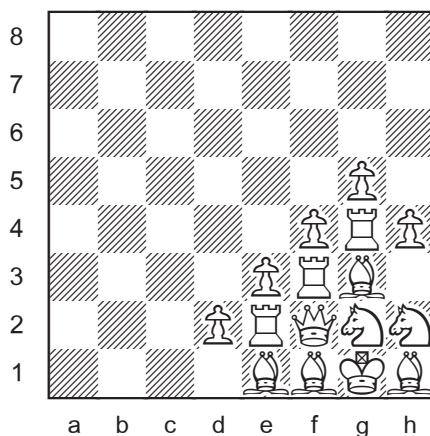


1.a4 2.Ra3 3.Rb3 4.Rb7 5.h4 6.Rh3 7.Rg3 8.Rg7 9.e4 10.d4  
 11.e5 12.Qh5 13.Qe8 14.Bd3 15.Bh7 16.Bg5 17.Bd8 18.Nf3  
 19.Ng5 20.Ne6 21.Nf8 22.Nc3 23.Nd5 24.Ne7 25.Ng8 26.Ke2  
 27.Ke3 28.Kf4 29.Kf6 30.Kf7 31.Re7 32.b4 33.b5 34.b6 35.d5  
 36.d6 37.d7 38.e6 39.f4 40.f5 41.f6 42.g4 43.g5 44.g6 45.c4

K0 Q0 R0 B1 N1 p4

This breaks the old mark by one turn. More significantly, it shows that reducing the number of possible moves to six is faster at the top of the board than at the bottom.

*Here is the original solution. 46 turns.*

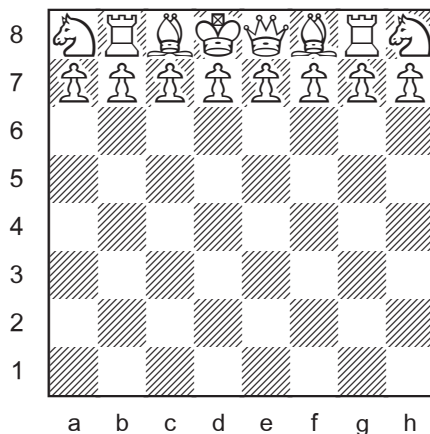


1.a4 2.a5 3.a6 4.a7 5.a8=B 6.b4 7.b5 8.b6 9.b7 10.b8=B 11.c4 12.c5 13.c6 14.c7  
 15.c8=R 16.Bb2 17.Bf6 18.Bh4 19.g4 20.g5 21.h3 22.Nf3 23.Nh2 24.Rg1 25.Rg4  
 26.Bh1 27.Bbg3 28.f4 29.Nc3 30.Nd5 31.Ne3 32.Ng2 33.Kf2 34.Kg1 35.Qb3  
 36.Bf2 37.Qg3 38.Rc3 39.Rf3 40.e3 41.Re1 42.Re2 43.Be1 44.Qf2 45.Bg3 46.h4  
 K0 Q0 R0 B0 N0 p6

*[As first published, the column now proceeded to two possible moves. That solution remains below. But with major assistance from Geir Sune, positions for five, four, and three possible moves have since been created and appear on the following two pages. They were originally given in column 39.]*

I don't know about you, but I'm tired of going one step at a time. Let's accelerate our descent and look at a simple way to reduce the number of possible moves to two.

two possible moves: 59 turns



This upside down world takes 59 turns to achieve.

1.a4 2.Ra3 3.Rb3 4.Rb8 5.h4 6.Rh3 7.Rg3 8.Rg8 9.Nc3 10.Nd5  
 11.Nb6 12.Na8 13.Nf3 14.Ne5 15.Ng6 16.Nh8 17.e4 18.d4  
 19.Ba6 20.Bc8 21.Bh6 22.Bf8 23.Qh5 24.Qe8 25.Ke2 26.Ke3  
 27.Kf4 28.Ke5 29.Ke6 30.Ke7 31.Kd8

Time now for the ultimate pawn avalanche.

32.a5 33.a6 34.a7 35.b4 36.b5 37.b6 38.b7 39.c4 40.c5 41.c6  
 42.c7 43.d5 44.d6 45.d7 46.e5 47.e6 48.e7 49.f4 50.f5 51.f6  
 52.f7 53.g4 54.g5 55.g6 56.h5

At this point there are five possible moves.

57.h6 Now four.

58.g7 Three.

59.h7 Two.

K0 Q0 R0 B0 N2 p0

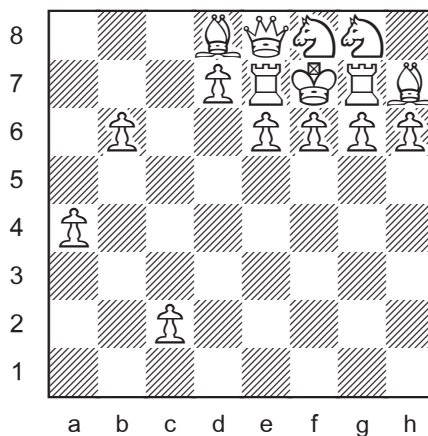
Probably there are quicker routes to positions with two to five possible moves. But the real question is: Can we get down to the number one? And the answer is yes, with the help of a rook promotion. Once again, 59 turns are required.

*[New records for two and one possible moves are given on pages 20-21.]*

five possible moves: 46 turns

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*ChessCafe.com*



Same as above with 45.h5 46.h6 instead of 45.c4.

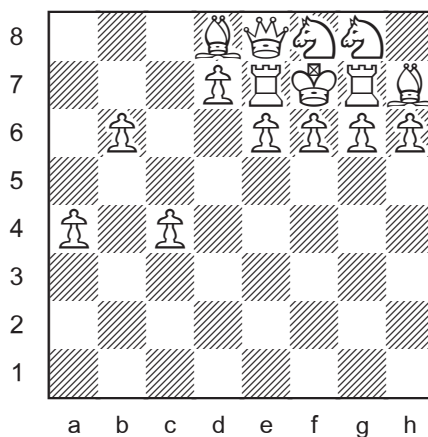
K0 Q0 R0 B1 N0 p4

This breaks the old mark by ten turns.

four possible moves: 47 turns

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*ChessCafe.com*

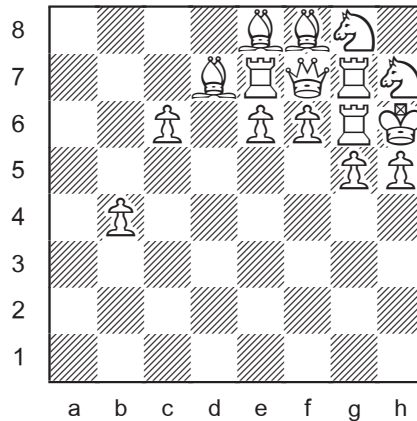


Same as above with final moves 45.h5 46.h6 47.c4.

K0 Q0 R0 B1 N0 p3

This also breaks the old mark by ten turns.

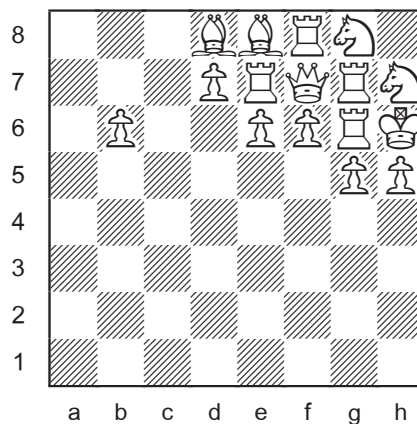
three possible moves: 51 turns  
 J. Coakley & Geir Sune Tallaksen Østmoe 2013  
 ChessCafe.com



1.a4 2.a5 3.a6 4.a7 5.a8=B 6.e4 7.d4 8.Bb5 9.Be8 10.Bh6  
 11.Bf8 12.Nc3 13.Nd5 14.Nf6 15.Ng8 16.Nf3 17.Ng5 18.Nh7  
 19.Qh5 20.Qf7 21.Ke2 22.Ke3 23.Kf4 24.Kg5 25.Kh6 26.Ra7  
 27.Re7 28.h4 29.Rh3 30.Rg3 31.Rg7 32.d5 33.d6 34.d7 35.d8=R  
 36.Rd6 37.Rg6 38.Bac6 39.Bd7 40.b4 41.c4 42.c5 43.c6 44.e5  
 45.e6 46.f4 47.f5 48.f6 49.g4 50.g5 51.h5

K0 Q0 R0 B1 N0 p2 This breaks the old mark by seven turns.

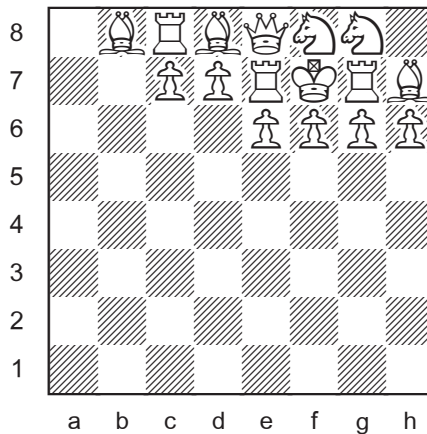
two possible moves: 53 turns  
 J. Coakley & Geir Sune Tallaksen Østmoe 2013  
 ChessCafe.com



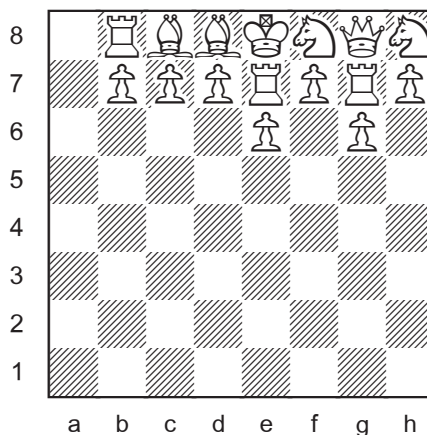
1.a4 2.a5 3.a6 4.a7 5.a8=R 6.Rf8 7.Nc3 8.Nd5 9.Nf6 10.Ng8  
 11.Nf3 12.Ng5 13.Nh7 14.e4 15.d4 16.Bb5 17.Be8 18.Bg5  
 19.Bd8 20.Qh5 21.Qf7 22.Ke2 23.Ke3 24.Kf4 25.Kg5 26.Kh6  
 27.Ra7 28.Re7 29.h4 30.Rh3 31.Rg3 32.Rg7 33.c4 34.c5 35.c6  
 36.c7 37.c8=R 38.Rc6 39.Rg6 40.b4 41.b5 42.b6 43.d5 44.d6  
 45.d7 46.e5 47.e6 48.f4 49.f5 50.f6 51.g4 52.g5 53.h5

K0 Q0 R0 B1 N0 p1 This breaks the old mark by six turns.

one possible move: 56 turns  
 J. Coakley & Geir Sune Tallaksen Østmoe 2013  
 Chesscafe.com



1.a4 2.a5 3.a6 4.a7 5.a8=R 6.Rc8 7.Nc3 8.Nd5 9.Nf6 10.Ng8  
 11.Nf3 12.Ng5 13.Nh7 14.Nf8 15.e4 16.d4 17.e5 18.Bd3 19.Bh7  
 20.Bg5 21.Bd8 22.Qh5 23.Qe8 24.Ke2 25.Ke3 26.Ke4 27.Kf5  
 28.Kf6 29.Kf7 30.Ra7 31.Re7 32.h4 33.Rh3 34.Rg3 35.Rg7 36.b4  
 37.b5 38.b6 39.b7 40.b8=B 41.c4 42.c5 43.c6 44.c7 45.d5 46.d6  
 47.d7 48.e6 49.f4 50.f5 51.f6 52.g4 53.g5 54.g6 55.h5 56.h6  
 K0 Q0 R0 B1 N0 p0      This breaks the old mark by four turns.

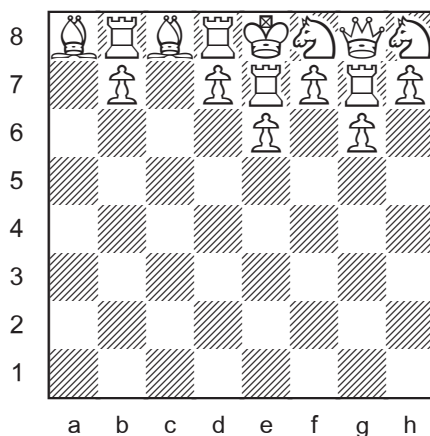


*The old 59 mover.*

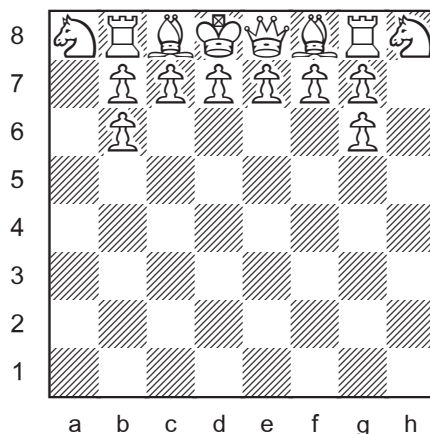
1.a4 2.a5 3.a6 4.a7 5.a8=R 6.Rb8 7.Nc3 8.Nb5 9.Nd4 10.Ne6 11.Nf8  
 12.Nf3 13.Ne5 14.Ng6 15.Nh8 16.e4 17.d4 18.Ba6 19.Bc8 20.Bg5 21.Bd8  
 22.Qg4 23.Qg8 24.Ke2 25.Ke3 26.Kf4 27.Ke5 28.Ke6 29.Ke7 30.Ke8  
 31.Ra7 32.Rg7 33.h4 34.h5 35.h6 36.Rh5 37.Re5 38.Ree7 And here come  
 the pawns. 39.b4 40.b5 41.b6 42.b7 43.c4 44.c5 45.c6 46.c7 47.d5 48.d6  
 49.d7 50.e5 51.e6 52.f4 53.f5 54.f6 55.f7 56.g4 57.g5 58.g6 59.h7  
 K0 Q0 R1 B0 N0 p0

4i. Is zero possible? If it is, I couldn't find it.

The *sixteen pieces series self-stalemate* may be impossible. The following position looks like a solution, but unfortunately there is no dark-square bishop.



White is also stalemated in the diagram below, but it would require two pawn captures, and there are no black pieces in this puzzle to take.



Well, we've finally bottomed out.

Next month there will be another *sixteen pieces* column with new puzzles. I will also update the "record tables" then if any kind readers send in their improvements. Thanks.

*See next page for the minimalist table.*

## SIXTEEN PIECES

*current records*

POSSIBLE MOVES	MINIMAL TURNS FROM ARRAY
20	0
19	1
18	2
17	3
16	6
15	8
14	9
13	10
12	13
11	17
10	18
9	20
8	31
7	32
6	45
5	46
4	47
3	51
2	53
1	56
0	?

More records may yet be broken. Please write in if you discover an improvement for any puzzle.

Until next time!

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