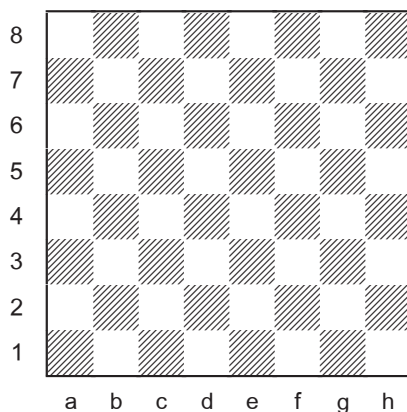
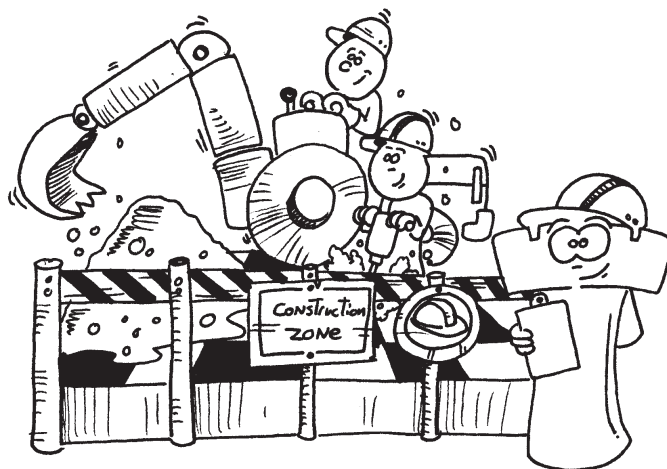


The following construction task is a repeat from column 193 which asks the question: “*What is the maximum number of consecutive discovered checks in a legal chess position?*” The answer given there was 9. We now have a new record with 12 discovered checks in a row. Can you match or better that mark?

Consecutive Disco Check Maximizer



Construct a legal position from which the most consecutive discovered checks are possible. Every move, white and black, must be a discovered check.



70

Seventy is a weird number, literally. In mathematics, a number is *weird* if it is abundant but not pseudoperfect.

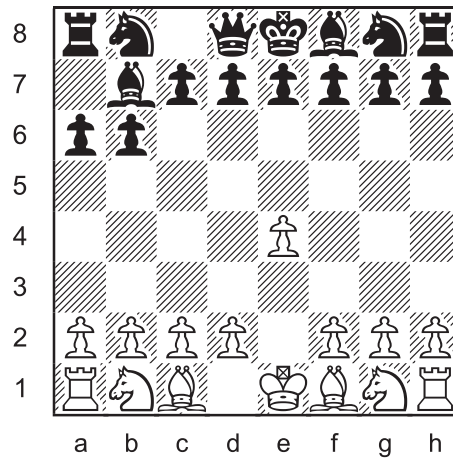
An *abundant* number is smaller than the sum of its divisors. For example, 12 is smaller than $(1+2+3+4+6)$.

A *pseudoperfect* number is equal to the sum of some of its divisors. For example, 12 is equal to $(6+4+2)$.

The smallest weird number is 70. Go figure. Its divisors are 1, 2, 5, 7, 10, 14, 35.

Proof games have proven to be quite popular on the Puzzling Side.

Proof Game 90 (4.0 moves)



This position was reached after
Black's fourth turn. What were the moves?

Interstate 70 is an east-west highway across the United States, stretching over 2000 miles from Baltimore, Maryland to the middle of nowhere in central Utah. Major cities along the route include Columbus, Indianapolis, St. Louis, Kansas City, and Denver.

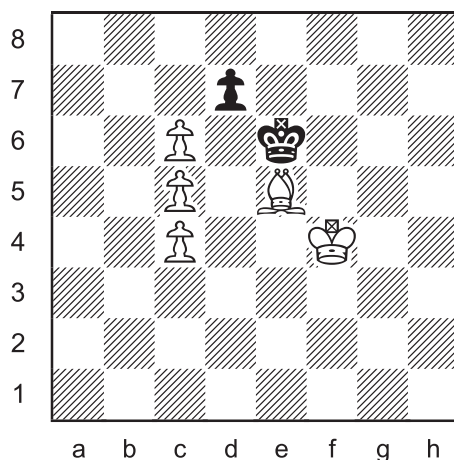


My Camaro

Utah 1984

The next puzzle, kindly submitted by Dan Heisman, is a hybrid of two problem-types: switcheroo and helpmate. Great idea, Dan!

Switcheroo Helpmate in 1

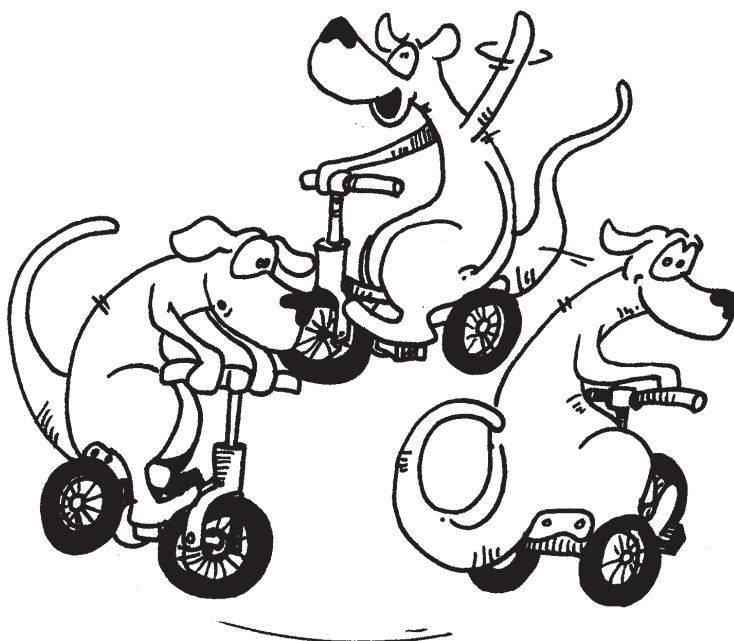


Switch two pieces so that there is a helpmate in 1.
Black makes a move that allows White to play mate.

In a *switcheroo*, any two pieces can swap squares. Colours do not matter. You can switch white with white, black with black, or white with black. See column 4.

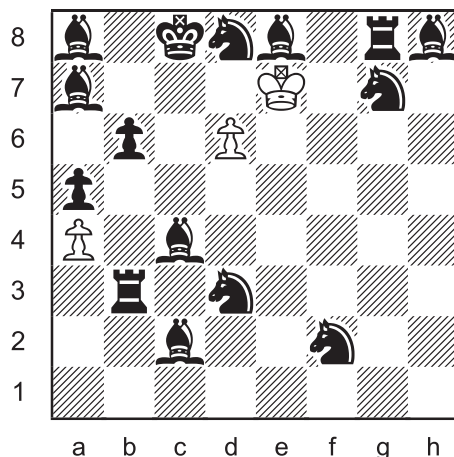
In this problem, after the switch, there should be a *helpmate in 1*.
Black to move. See column 48.

A cool cyclotronic version of the above problem, by Adrian Storisteanu, is given in the solution pages.



Chess is so much easier when your opponent doesn't get to move. In this puzzle, White has 54 turns in a row to mate the black king. Can you find the right series of moves?

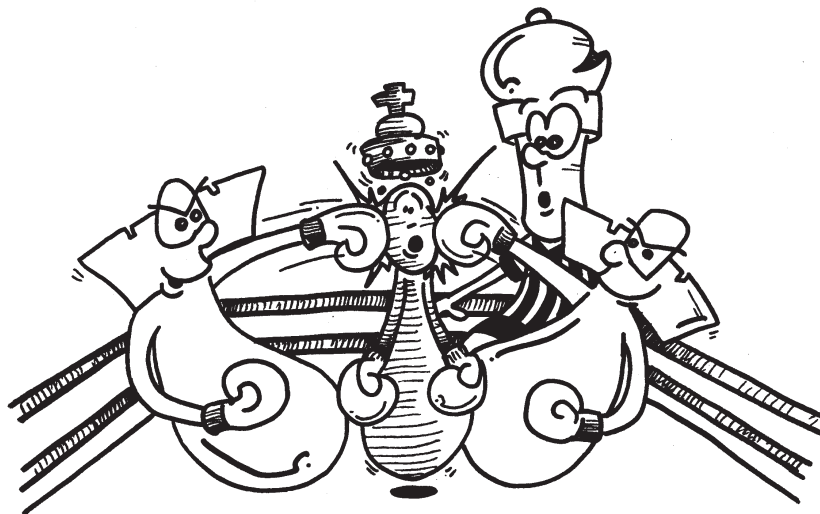
Multi-Wham 49



series-mate in 54

White plays fifty-four consecutive moves to mate Black.

Only the last move may give check. Captures are allowed. White may not place their own king in check. Black does not get a turn.



Smorgasbord XXX. They sure add up fast. For a list of all 30 such columns, see the new expanded index in the *Puzzling Side* archives. The following puzzle is given there under "math".

An Odd Old Progression

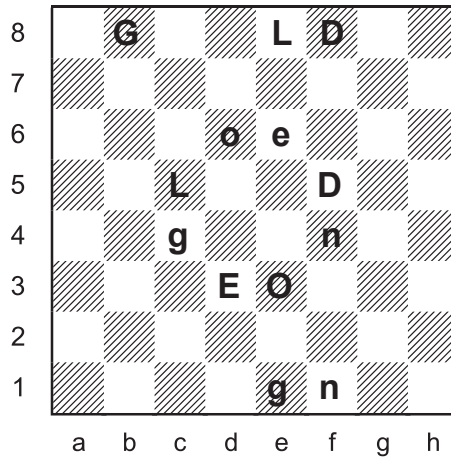
3, 7, 12, 14, 16, 19, 21, 25, 30, 41, 45, 52, 54, 56, 59, 61, 65, 70, ...

What is the next number in the sequence after 70?

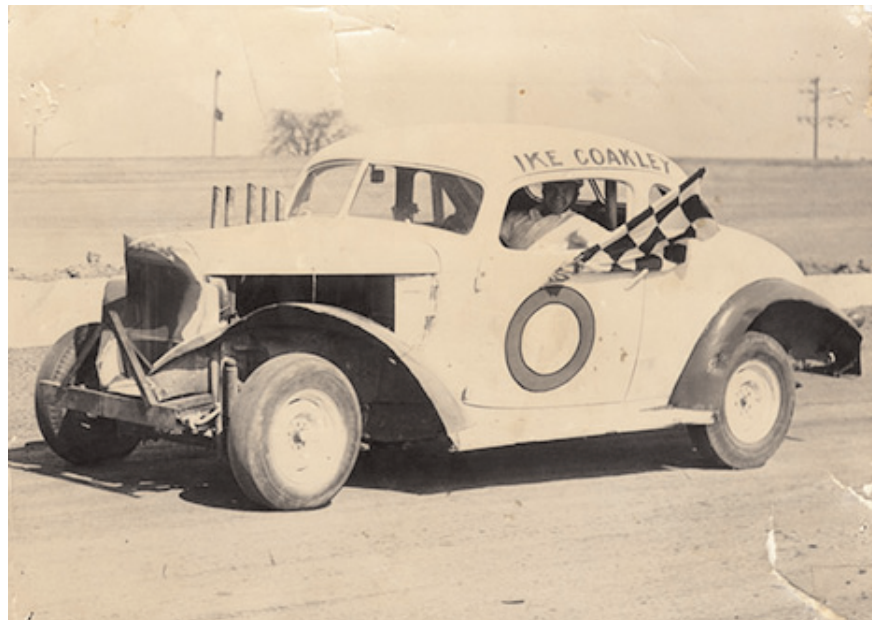
Did you hear about the golden egg that laid a goose?

Rebus 61

“Golden Egg”



Each letter represents a different type of piece.
Uppercase is one colour, lowercase is the other.
Unscramble the position and determine the last move.



Seventy years ago was the dark ages. Televisions were black and white. Photos were black and white. There were no push button phones or microwaves. The milkman delivered bottles of milk to your front door. And my stepfather was winning jalopy races.

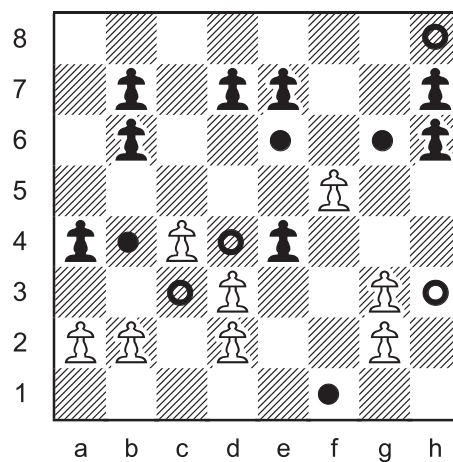
But some things never change. A *chequered flag* is still black and white.

We finish this smorgasbord by introducing a new type of puzzle. The ever creative Nina Omelchuk came up with the idea. She also painted the accompanying picture. Happy halloween!

The diagram shows the “bases” of the pieces but not the “tops”, so we know which colour pieces are on which squares. We are told which kind of pieces are on the board and we must figure out which tops go on which bases. A nifty problem involving retrograde analysis.

This particular puzzle is neither too hard nor too easy. For the tough stuff, stay tuned for an upcoming article by Andrey Frolkin and me.

Button Tops 01



Hollow buttons are white pieces. Solid buttons are black.
The following pieces are on the board.



Determine the position and the last move.



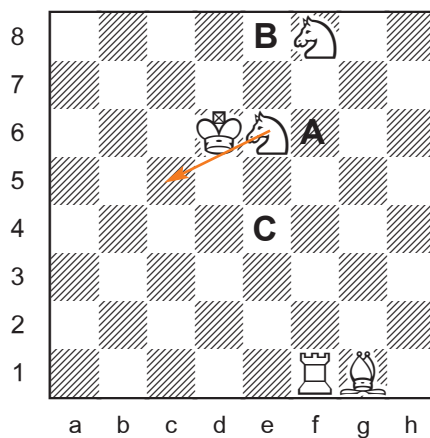
SOLUTIONS

Unless noted otherwise, all problems by J. Coakley, *Puzzling Side of Chess* (2020). Rebus 61 and Button Tops are joint compositions with Andrey Frolkin.

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.

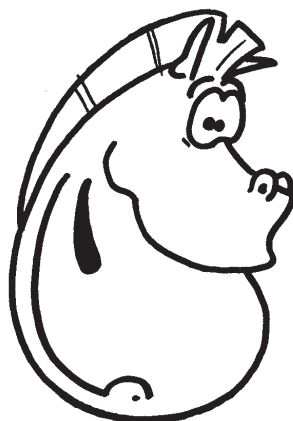
Archives. Past columns are available in the *Puzzling Side* archives. An index of problems, composers, and miscellanea is also included.

Triple Loyd 84

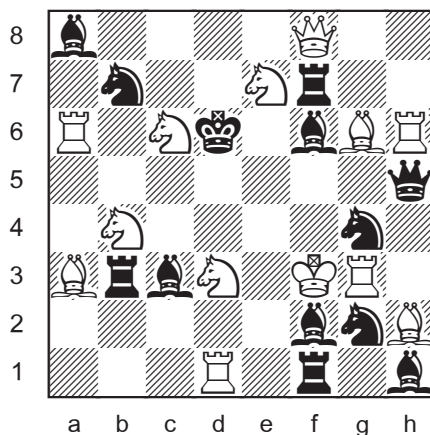


- A. Kf6#
- B. Ke8 =
- C. Ke4 (Nc5#)

Knight life.



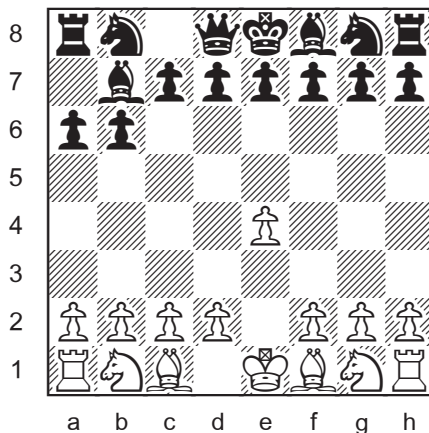
Consecutive Disco Check Maximizer



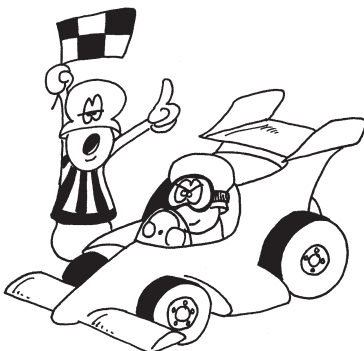
- | | |
|---------|------|
| 1. Nb8+ | Bb6+ |
| 2. Nf2+ | Bd2+ |
| 3. Nd3+ | Nc5+ |
| 4. Nd5+ | Be7+ |
| 5. Bf5+ | Nf6+ |
| 6. Rg4+ | Nf4+ |

12 consecutive discovered checks.

Proof Game 90 (4.0 moves)



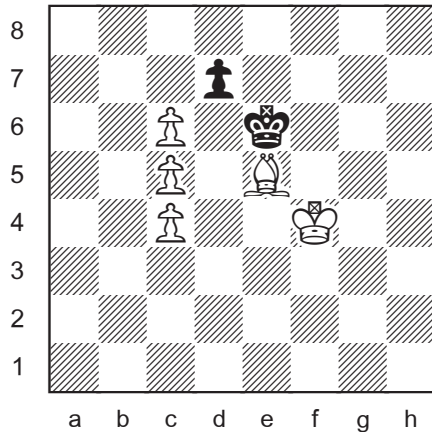
1.e3 b6 2.Qf3 Ba6 3.Qb7 Bxb7 4.e4 a6
Tempo moves by white e-pawn and black bishop.



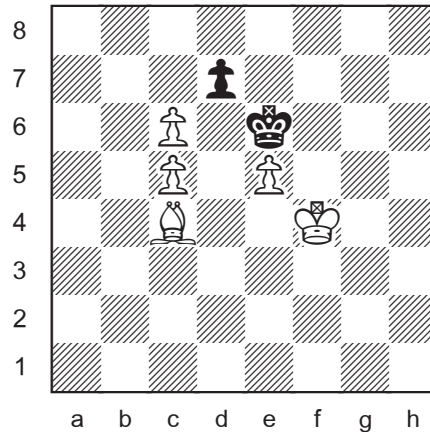
Switcheroo Helpmate in 1

Dan Heisman 2020

Puzzling Side of Chess



c4↔Be5



after switch

1.d7-d5 c5xd6 e.p.#

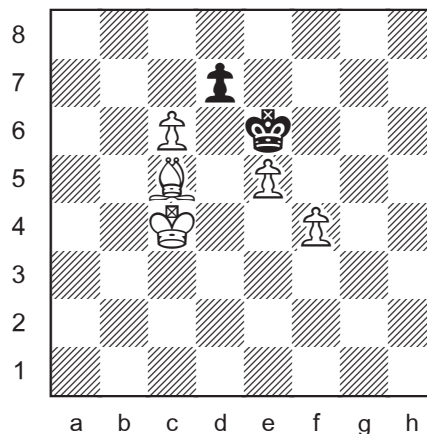
In helpmate notation, Black's move is given first. After the switch, Black is in check which is illegal in normal switcheroos and avoided in normal helpmates. Did the *en passant* mate stump you? It did me.

Cyclotron Helpmate in 1

Adrian Storisteanu

version of Dan Heisman 2020

Puzzling Side of Chess



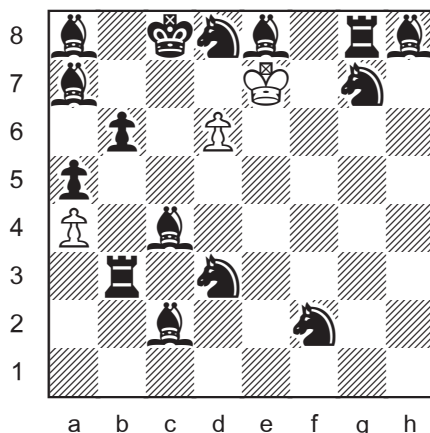
Cycle three pieces so that there is a helpmate in 1.

In a *cyclotron*, any three pieces can swap squares. Colours do not matter. The pieces trade places in a "cycle". Piece A goes to square B, piece B goes to square C, and piece C goes to square A. See column 55.

Kc4→f4 f4→c5 Bc5→c4

1.d7-d5 c5xd6 e.p.#

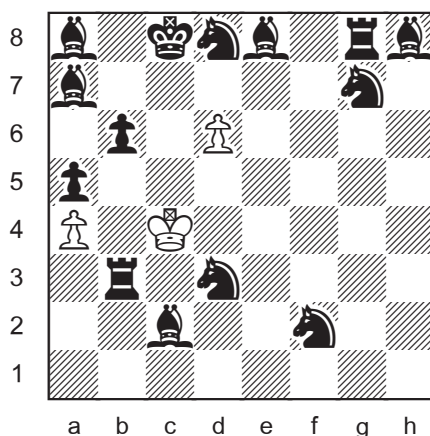
Multi-Wham 49



series-mate in 54

To free the a-pawn, White has to capture the black pawn on a5, which is guarded by the pawn on b6 which is guarded by the bishop on a7. So the white king must travel to a6. To secure his path through b5, the bishops on c4 and e8 and rook on b3 must be eliminated. The first target is the bishop on c4 which guards the rook on g8 which guards the bishop on e8.

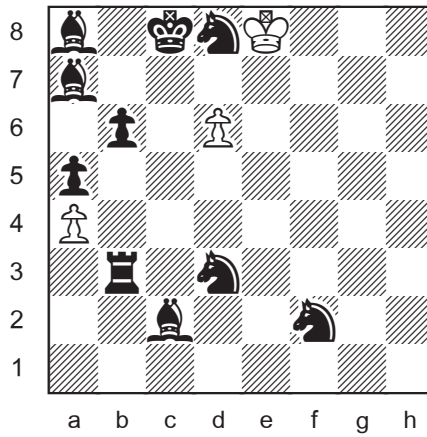
1.Kf6 2.Kg5 3.Kh4 4.Kg3 5.Kh2 6.Kg1 7.Kf1 8.Ke2 9.Ke3 10.Kd4
11.Kxc4



12.Kd4 13.Ke3 14.Ke2!

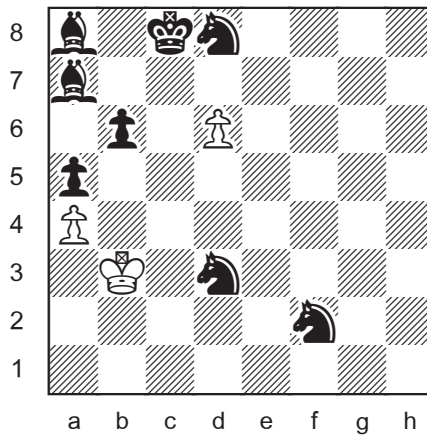
Going immediately for the rook on b3 with 14.Kd2 15.Kxc2 16.Kxb3 takes four moves longer in the long run. The shorter course is taking the bishop on e8 first and then returning for the rook on b3.

15.Kf1 16.Kg1 17.Kh2 18.Kg3 19.Kh4 20.Kg5 21.Kh6 22.Kh7
23.Kxg8 24.Kxh8 25.Kxg7 26.Kf8 27.Kxe8

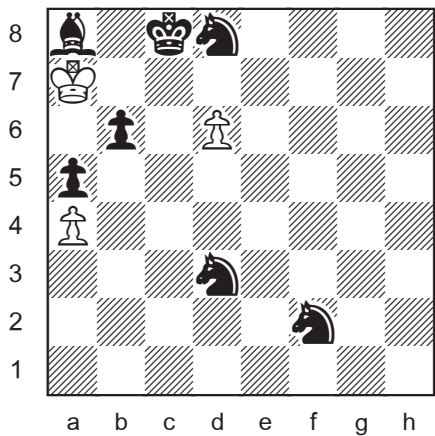


Now back for the black rook.

28.Ke7 29.Kf6 30.Kg5 31.Kh4 32.Kg3 33.Kh2 34.Kg1 35.Kf1
36.Ke2 37.Kd2 38.Kxc2 39.Kxb3



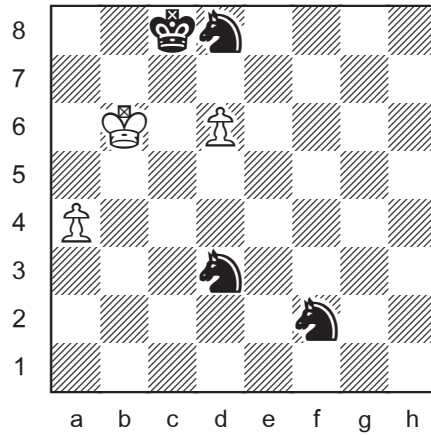
40.Kc4 41.Kb5 42.Ka6 43.Kxa7



44.Kxa8

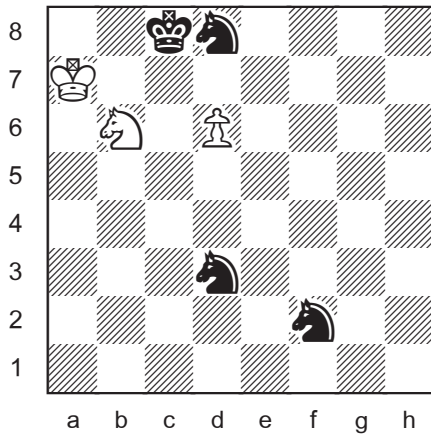
White clears the promotion square before liberating the a-pawn.

45.Ka7 46.Kxb6 47.Kxa5 48.Kb6



Do you see the mate yet?

49.a5 50.a6 51.a7 52.a8=N 53.Ka7 54.Nb6#



A knightly performance.



An Odd Old Progression

Numbers in the sequence are the Roman numerals with three letters.

III, VII, XII, XIV, XVI, XIX, XXI, XXV, XXX,
XLI, XLV, LII, LIV, LVI, LIX, LXI, LXV, LXX

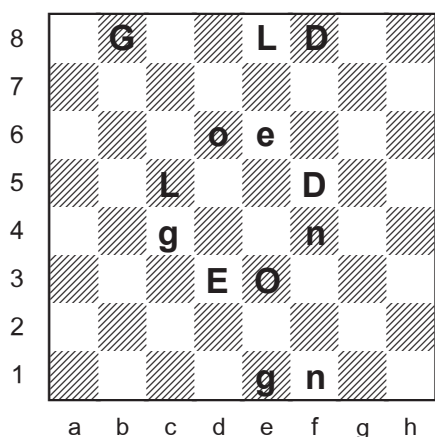
Next is 91, XCI

Rebus 61

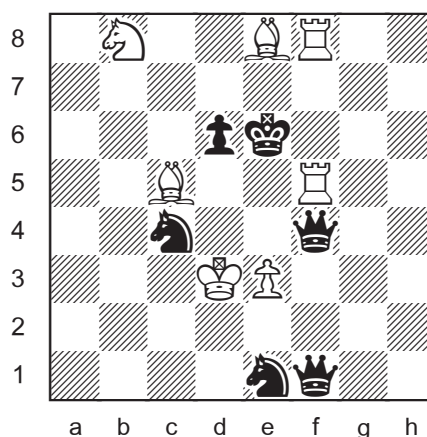
Andrey Frolikin & Jeff Coakley 2020

Puzzling Side of Chess

“Golden Egg”



G = knight
 O = pawn
 L = bishop
 D = rook
 E = king
 N = queen
 caps = white
 last move:
 1...e2-e1=N++



(7 + 6)

♔ = (EO) Letters with one uppercase, one lowercase.

♙ = (EO) Letters not on 1st or 8th rank.

♔♖♗♘ = (GLDN)

O ≠ ♔ If O = ♔ Each of the letters GLDN attacks a king (O) along a diagonal (Gb8, Lc5, Df8, Nf4). Two of these letters are queen and bishop, so there are two checks. No legal double check is possible.

O = ♙

E = ♔ The three letters GDN attack a king (E) along a diagonal (Gc4, Df5, Nf1). One of these letters is a queen or a bishop so there is a check.

L = (♔♗) If queen and bishop are both assigned to GDN, then there are two checks. No legal double check is possible.

L = ♗ If L = ♔ Impossible multiple checks (♔e8).

♔♖♘ = (GDN)

Each of the letters GDN attack a king (E) “knightwise” (Ge1, Df8, Nf4). So there is a double check by queen and knight. There is only one way to assign pieces and colours so that there is a legal double check.

N = ♔

G = ♘

caps = white

last move: 1...e2-e1=N++

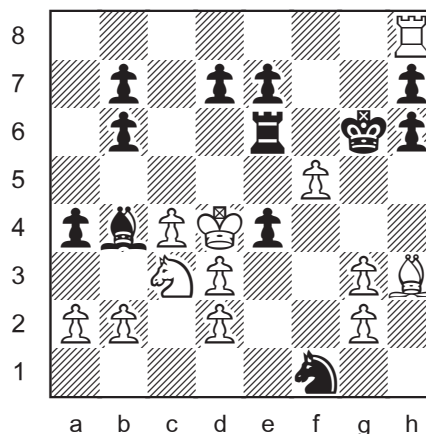
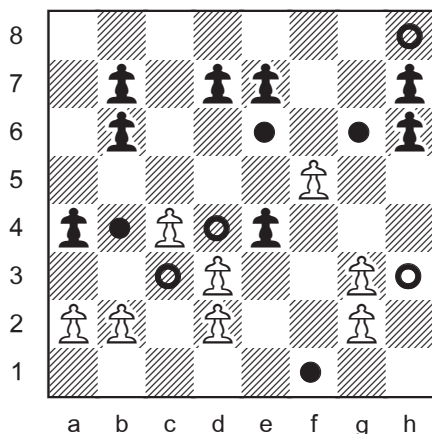
D = ♖



Button Tops 01

Andrey Frolkin & Jeff Coakley 2020

Puzzling Side of Chess



(12 + 12)

Each side has 8 pawns. So there are no promoted pieces.

h3 = ♗ The white dark-square bishop was captured on c1 (unmoved pawns b2 d2). Thus White has a light-square bishop on the board. The only light-square button is h3.

b4 = ♜ The black light-square bishop was captured on c8 (unmoved pawns b7 d7). The only dark-square button is b4.

f1 ≠ ♔ A black king could not get by the white pawns to reach the 1st rank. The entire 3rd rank has always been attacked or blocked by white pawns. "No king in the box."

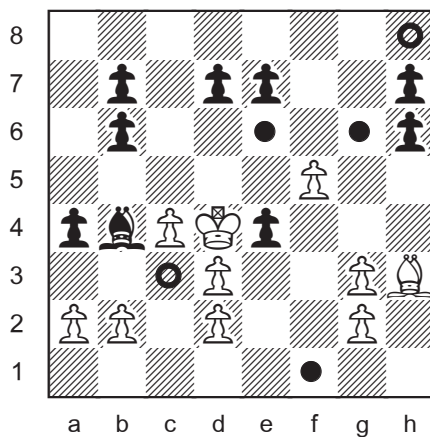
♔ = e6 or g6 Check by the pawn on f5.

h8 ≠ ♔ Given the black pawn formation, a white king cannot be on the 8th rank

c3 ≠ ♔ Both kings in check (♜b4 ♖f5).

♔ = d4





Black is missing 4 pieces. One is the bishop taken on c8. Two others were captured by the pawns on d3 and g3. That leaves one missing black piece unaccounted for.

The last move was not 1.g4xf5+ because that would require two captures by that pawn (one to the g-file and one to f5). Therefore the last move was the advance **1.f4-f5+**.

e6 ≠ ♔ If e6 = ♔, then the king would already be in check by the bishop on h3 before White played 1.f4-f5+.

♔ = g6 Check.

h8 ≠ ♘ Impossible double check (f5 h8).

♖ = h8

♘ = c3

e6 ≠ ♞ Both kings in check (e6 f5).

♞ = e6

♞ = f1



Until next time!

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