REBUS TRANSFORMATIONS
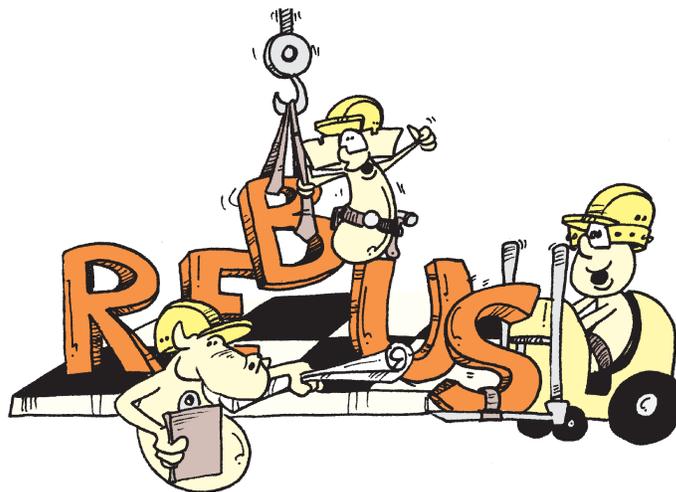
Jeff Coakley & Andrey Frolkin

This article contains four complex and lengthy rebuses. The shortest line of retroplay is 10 moves. One problem sets a new record. Another involves the 50 move rule, a task we have contemplated since 2016.

The construction of most chess rebuses originates with a retro concept that forms the essential point in the assignment of pieces or colours. The final setting is built up around the concept. The normal stipulation for the resulting problems is to determine the position. Retroplay is usually limited to a single last move.

However, when composing rebuses with a greater number of last moves, the process often begins with the final setting in which the retroplay is already present. The position is then altered accordingly into rebus format by making the possible assignment of pieces to letters unique. In some cases, additional retro content can be incorporated into the rebus side of things.

Using this compositional method, it is sometimes possible to *transform* existing last movers into rebuses. The first three problems demonstrate this technique to differing degrees.

Rebus 70 is a *direct transformation* of a masterpiece from 1940 by Hugo August and Anton Trilling. The position was not altered in any way. Pieces were simply replaced with letters. "Instant rebus!"

One positive effect of the rebus conversion was the discovery that the assignment of two piece-types depends on the retroanalysis of a complicated pawn formation. For a long time, we considered this 44 mover to be the length record for rebuses.

Rebus 70

"Forty-four"
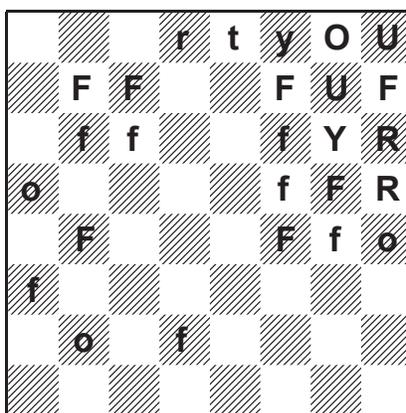
Each letter represents a different type of piece.
Uppercase is one colour, lowercase is the other.
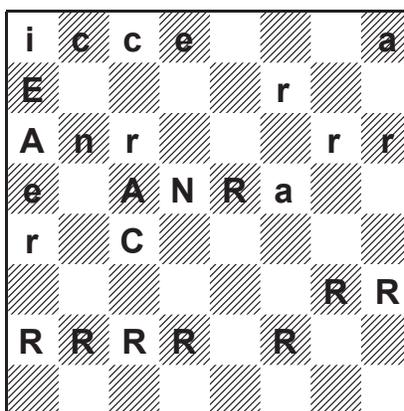Determine the position and the last 44 moves.

"The colours of chess (and of chess rebuses) are not only black and white; there are other colours, too."   Nina Omelchuk

The next rebus is a transformation of a problem by Luigi Ceriani. In this case, two changes to the position were necessary for a sound conversion. The plus side of the changes was enhancement of the retro content by the addition of a *time loop* which was not part of the original composition.

Rebus 71
"Ceriani"

Each letter represents a different type of piece.
Uppercase is one colour, lowercase is the other.
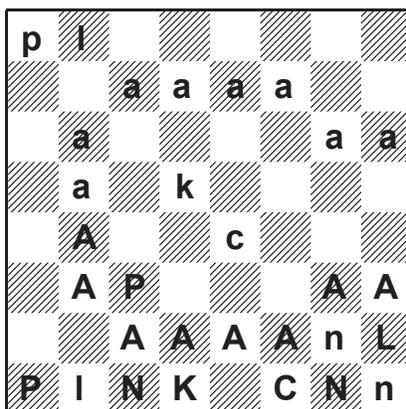Determine the position and the last 10 moves.

For more on time loops, see *rebus 64* (column 197) and *who's the goof 36* (column 174).

As would be expected, the vast majority of retro problems cannot be transformed into rebuses. However, sometimes it is possible to use ideas from other compositions as the basis of a new rebus.

The great Russian retro master Nikita Plaksin has composed nearly a hundred problems based on the 50 move rule, the earliest in 1966. Several employ a *tactical device* and pawn formation similar to the next puzzle. We dedicate the rebus to him on the occasion of his 90th birthday (July 9, 2021).
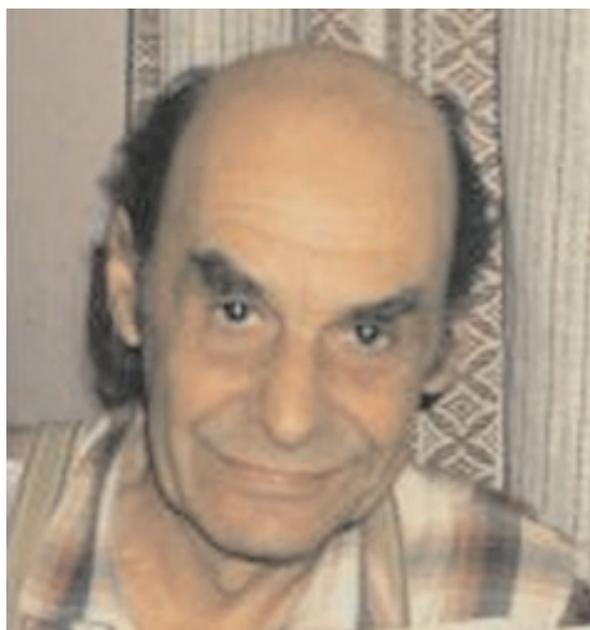
Rebus 72
"Plakcin"

Each letter represents a different type of piece.
Uppercase is one colour, lowercase is the other.
Determine the position and the last move.
(*Letters on b1 and b8 are small L, not capital i.*)
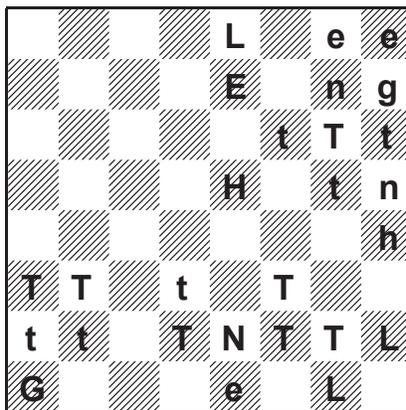

Никита Михайлович Плаксин

Window of Opportunity

Our final puzzle is not a transformation. But it is a new length record for rebuses. Forty-six exactly determined last moves!

Rebus 73

"length"

Each letter represents a different type of piece.
Uppercase is one colour, lowercase is the other.
Determine the position and the last 46 moves.

SOLUTIONS

All rebuses are joint compositions by Andrey Frolkin and Jeff Coakley, *Puzzling Side of Chess* (2021). As noted in the text, rebuses 70 and 71 are versions (transformations) of non-rebus compositions by others.
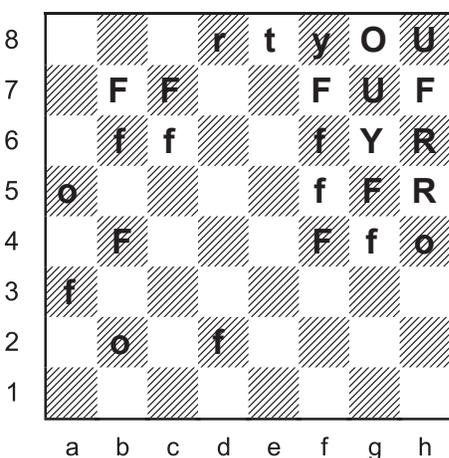
PDF hyperlinks. You can advance to the solution of any puzzle by clicking on the underlined title above the diagram. To return to the puzzle, click on the title above the solution diagram.

Rebus 70

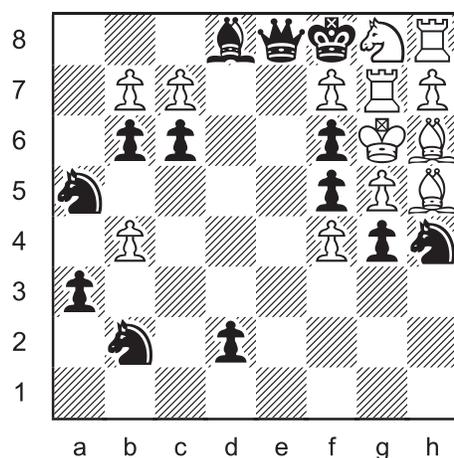*original composition:* Hugo August & Anton Trilling 1940
Die Schwalbe

rebus transformation: Andrey Frolkin & Jeff Coakley 2021

"*Forty-four*"

F = pawn
O = knight
U = rook
R = bishop
T = queen
Y = king

caps = white

last move:
1...Ng2-h4+

(13 + 13)

Letter count: 7F 1O 2U 2R   1Y   (13)
                7f 3o   1r 1t 1y (13)

Y = ♚   Letter with one uppercase, one lowercase.

F = ♙   Only letter not on 8th rank.

O = ♞   O ≠ ♕♖   Impossible check (g8).
             O ≠ ♗   Three lowercase O's on dark squares.

The king on g6 is in <u>check</u> by the knight on h4.

caps = white   If caps = black Impossible double check (f5).

U = ♖   U ≠ ♕♗   Both kings in check (g7).

RT = (♕♗)   Diagram next page.

last moves:
-1.   ...   Ng2-h4+
-2. f3-f4   Nb3-a5
-3. f2-f3   Nc5-b3
-4. b3-b4   Nd3xc5
-5. c4-c5   a4-a3
-6. c3-c4   a5-a4
-7. c2-c3   a7-a5
-8. a6xBb7   Ne1-d3
-9. a5-a6   d3-d2
-10. a4-a5   d4-d3
-11. a3-a4   d5-d4
-12. a2-a3   d7-d5
-13. d6xRc7   e2-e1=N
-14. d5-d6   e3-e2
-15. d4-d5   e4-e3
-16. d3-d4   e5-e4
-17. d2-d3   e7-e5
-18. e6xRf7   Rc8-c7
-19. e5-e6   Bc7-d8
-20. e4-e5   Qd8-e8
-21. e3-e4   Ke8-f8
-22. e2-e3   Rf8-f7
-23. Rf7-g7

White and Black are each missing 3 pieces.

Black has a promoted knight and 7 pawns. White has 7 pawns.

The white a-pawn captured axb7. The white e-pawn captured exf6 or exf7. That leaves only one missing black piece unaccounted for. So the white gh-pawns are necessarily on their original files. That means that the black kingside pawns made at least two captures, either ...exf and ...hxg or ...gxf and ...hxg. That leaves one missing white piece unaccounted for. So the black cd-pawns are on their original files, which means that the white d-pawn captured dxc7, accounting for all missing black pieces.

The original white c-pawn could not capture cxb or cxd to promote on b8 or d8. It was captured somewhere on the c-file.

R = ♗   R ≠ ♕   There are 2 uppercase R's and no white promotions.

T = ♕

8   a b c d e f g h

caps= white   (13 + 13)

The solved position is identical to August-Trilling 1940. A natural rebus!

So what were the last 44 moves?

The kingside cage must be released before retrostalemate occurs when the retraction of white pawn moves is exhausted.

White is missing a queen, knight, and the original c-pawn. Black has a promoted knight and is missing two rooks and a light bishop.

a b c d e f g h

(13 + 13)

Regardless of which black pawn captured on the f-file, the black h-pawn captured ...hxg4. The original black g-pawn did not promote. To do so, it would have to capture ...gxh to get by the white g-pawn. That would require three captures by Black on the fgh-files. This is impossible because one of the missing white pieces is the original c-pawn.

Therefore the black e-pawn promoted to knight on e1 and the black captures on the kingside were ...hxg4 and ...gxf. The white c-pawn was captured on the c-file.

Black pieces were captured on b7, d7, and on f6 or f7.
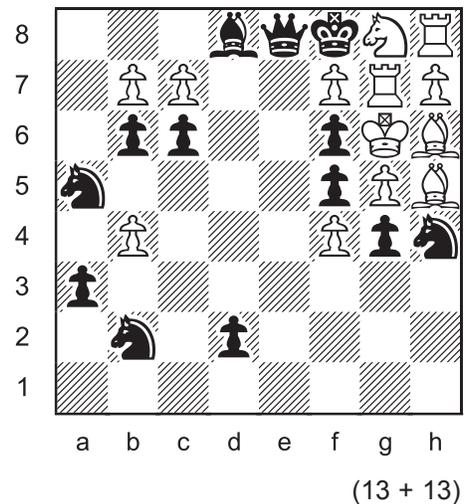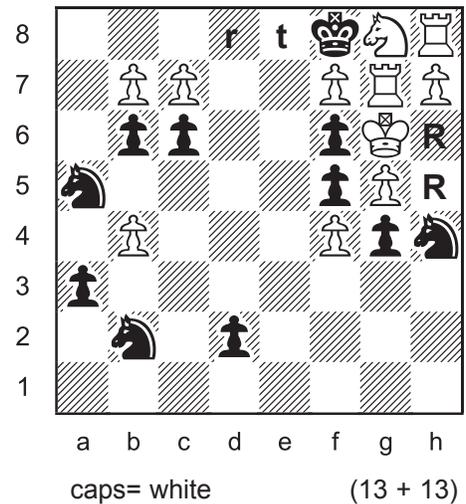
Rebus 70 *continued*

To release the cage, White must uncapture exRf7. White cannot uncapture a bishop on f7 because the white king would be in an impossible check by the bishop. Thus, a rook was captured on f7 and a bishop on the light square c7.

The uncapture on f7 must be preceded by the retraction of the black e-pawn to e7.

The uncapture dxc7 must be preceded by the retraction of the black d-pawn to d7.

The uncapture axb7 must be preceded by the retraction of the black a-pawn to a7.

The immediate attempt to unpromote on e1 with -1...Ng2-h4+ -2.f3-f4 Ne1-g2? -3.f2-f3 e2-e1=N leads to retrostalemate after -4.b3-b4 Nd1-b2 -5.b2-b3 e3-e2.

To gain enough reverse time, Black must quickly uncapture a white pawn on c5.

First retraction: -1...Ng2-h4+. Not *-1...Nf3-h4+?* which prevents the white f-pawn from retracting.

Next is -2.f3-f4 Nb3-a5! -3.f2-f3 Nc5-b3 -4.b3-b4 Nd3xPc5. Not *-2.f3-f4 Na4-b2?* (or *...Nd3-b2?*) *-3.f2-f3 Nc5-a4* because that would leave a knight on a5 blocking the retraction of the black a-pawn.

Now the black a-pawn rushes back to a7 while the white c-pawn retracts to c2. -5.c4-c5 a4-a3 -6.c3-c4 a5-a4 -7.c2-c3 a7-a5   Diagram.

It should be noted that *-7...Nd1-b2? b2-b3* is not possible because later the white pawn on c7 must retract to d2 with the white dark-square bishop still on h6. With white pawns on b2 and d2, that bishop cannot get back to c1.
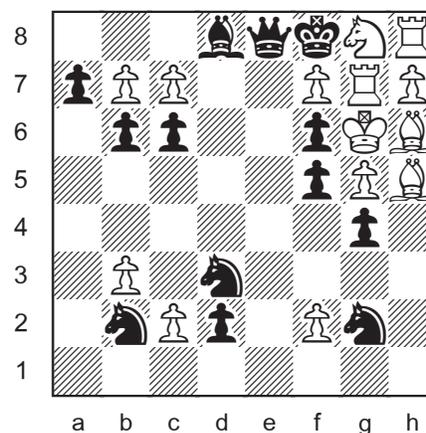
The white pawn on b7 can now untake and retract to a2 while the black d-pawn unmakes its way to d7.

-8.a6xBb7 Ne1-d3 Clearing the d-file and preparing to unpromote on e1.

-9.a5-a6 d3-d2 -10.a4-a5 d4-d3 -11.a3-a4 d5-d4 -12.a2-a3 d7-d5
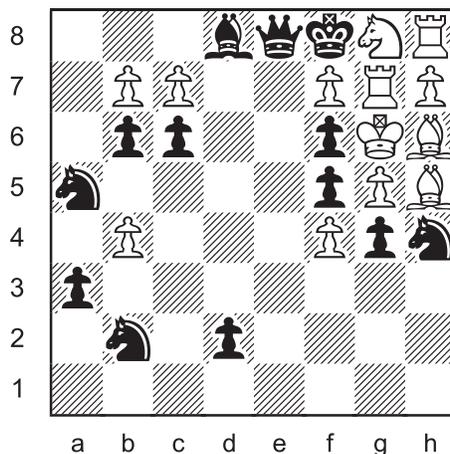
(13 + 13)

after -7...a7-a5

Rebus 70 *continued*

Next White uncaptures on c7 and Black unpromotes on e1. Then the pawns retract to d2 and e7.

-13.d6xRc7 e2-e1=N
-14.d5-d6 e3-e2
-15.d4-d5 e4-e3
-16.d3-d4 e5-e4
-17.d2-d3 e7-e5

Then White can retract -18.e6xRf7. Middle diagram.

The lock on the cage has been broken, but Black must still hurry to free the rook on g7 while the white e-pawn ungoes to e2.

-18...Rc8-c7
-19.e5-e6 Bc7-d8
-20.e4-e5 Qd8-e8
-21.e3-e4 Ke8-f8
-22.e2-e3 Rf8-f7
-23.Rf7-g7   Lower diagram.

44 last moves exactly determined.

Now White can shuffle pieces within the "expanded cage" to let the white king escape. For example: -23...Ra8-c8
-24.Bg7-h6 Bc8-b7 -25.Kh6-g6 Ne3-g2
-26.Bg6-h5 Bd6-c7 -27.Kh5-h6 Bc5-d6
-28.Kh4-h5 b7-b6 -29.Kg3-h4
Then the white h-pawn can retract to h2 and the rest is fairly easy.

A great last mover by German composers Hugo August (1902-1967) and Anton Trilling (1892-1947). Hopefully they don't mind its conversion to a rebus.
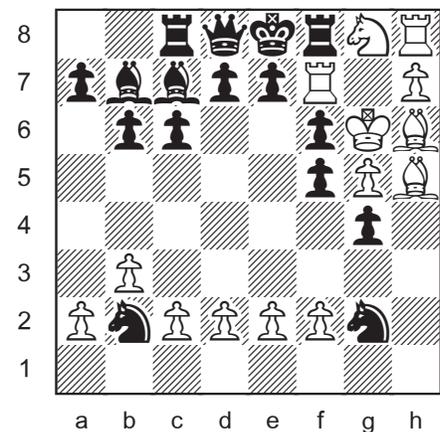
For those who prefer forward notation, play from the diagram was:
1.Rg7 Rf7 2.e3 Kf8 3.e4 Qe8 4.e5 Bd8 5.e6 Rc7 6.exf7 e5 7.d3 e4
8.d4 e3 9.d5 e2 10.d6 e1=N 11.dxc7 d5 12.a3 d4 13.a4 d3 14.a5 d2
15.a6 Ned3 16.axb7 a5 17.c3 a4 18.c4 a3 19.c5 Nxc5 20.b4 Nb3
20.f3 Na5 21.f4 Nh4+
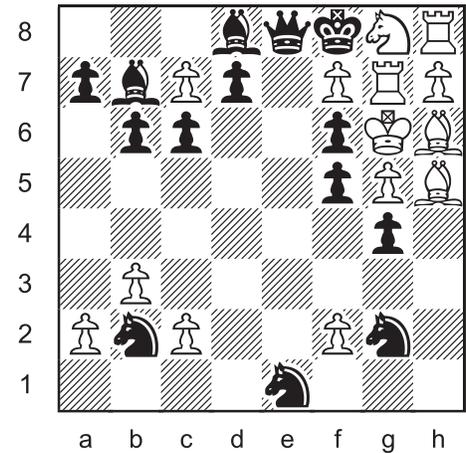
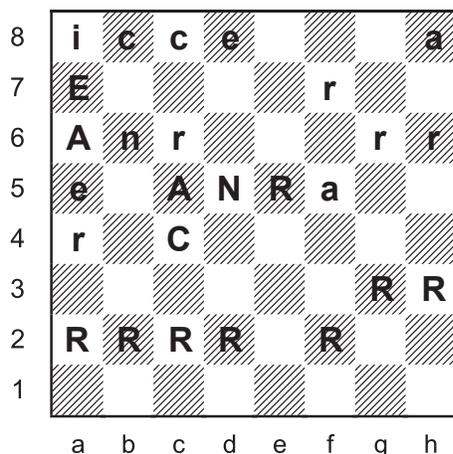*after -12...d7-d5*
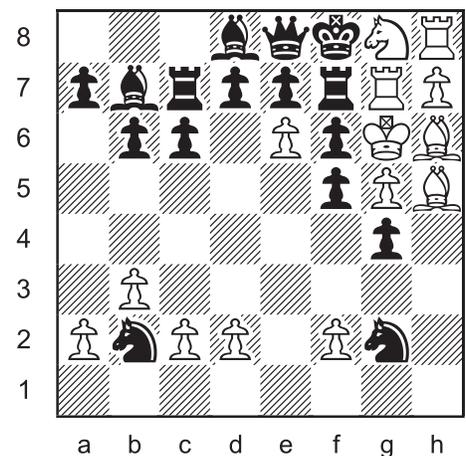
after -18.e6xRf7

after -23.Rf7-g7

Rebus 71

Andrey Frolkin & Jeff Coakley 2021
Puzzling Side of Chess
rebus version of Luigi Ceriani 1939
Die Schwalbe

"Ceriani"

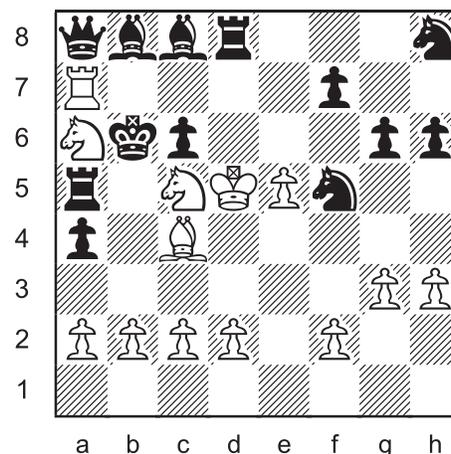C = bishop
E = rook
R = pawn
I = queen
A = knight
N = king

caps = white

last move:
1...d7xRc6++

(13 + 13)

Letter count: 1C 1E 8R   2A 1N   (13)
               2c 2e 5r 1i 2a 1n   (13)

last 10 moves:
-1. . . .   d7xRc6++
-2. Rf6xc6+ b7xQc6+
-3. Qe6xc6+ c7-c6+
-4. Qe8xe6+ e7-e6+
-5. Ne6-c5+ Kb5-b6+
-6. Bb3-c4+

N = ♔   Letter with one uppercase, one lowercase.

R = ♙   Only remaining letter not on 8th rank.

caps = white   If caps = black
                The "inverted" pawn formation
                requires 8 captures (two too many).

The white king (d5) is in <u>check</u> by the pawn on c6.

A = ♘   A ≠ ♕♗   Both kings in check (c5).
             A ≠ ♖   Both kings in check (a6).

E = ♖   E ≠ ♕♗   Both kings in check (a7).

The white king is in <u>check</u> by the rook on d8.

The last move was the double check -1...d7xc6++.

CI = (♕♗)

Diagram next page.

If C = ♕
I = ♗   Middle diagram.

White is missing 3 pieces, a rook and 2 bishops. The dark-square bishop was captured on c1. Another white piece was captured on c6 on the last move. That leaves one unaccounted white piece.

Black has a promoted queen. Since the original d-pawn captured on c6 last turn, the only black pawn that could have promoted is the missing e-pawn. This means that the white e-pawn made two captures, one to let the black pawn pass and the other to return to the e-file.

Black is missing 3 pieces, a dark-square bishop and 2 pawns. The original black b-pawn did not promote. Thus the two pieces captured by the white e-pawn were the original black c-pawn (on d3 or d4 after it captured a white piece on the d-file) and the dark-square bishop (on e5).

Now consider the last move. Which white piece was captured on c6, the missing rook or bishop?
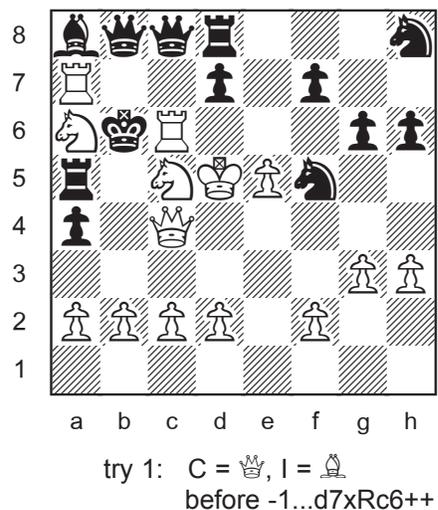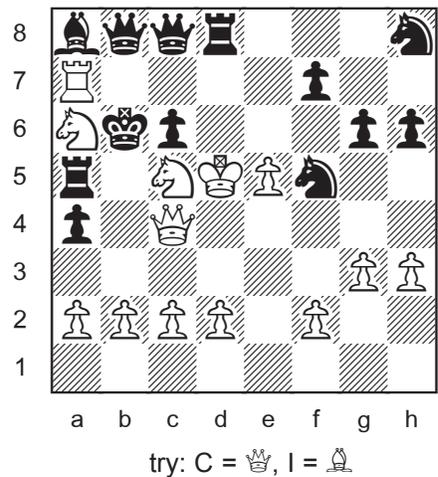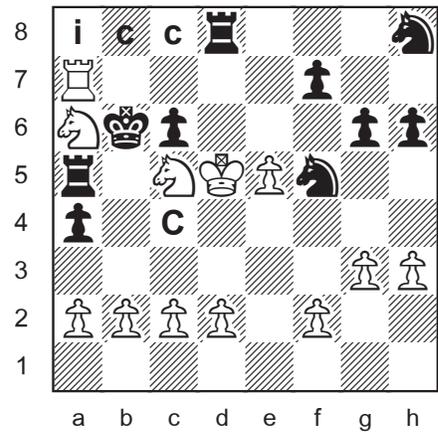
Try 1: White rook on c6. Diagram.

The black king is in <u>check</u>.

White's previous move was not the capture -2.Rxc6+ because there are no missing black pieces available for capture. The missing black b-pawn was necessarily captured earlier on the b-file.

White's previous move was not the non-capture -2.Rc7-c6+ because before that move White would be in an impossible check by the bishop on a8. (The discovery 2...Kb7-b6+ is impossible because the king on b7 would be in an impossible double check from rooks on a7 and c7.)

So the piece captured by Black on c6 could not be the white rook.

try: C = ♕, I = ♗

try 1: C = ♕, I = ♗
before -1...d7xRc6++

Try 2: White bishop on c6. Diagram.

There is an impossible situation in which two captures must necessarily precede each other.

The original black c-pawn captured the missing white rook on the d-file before it was captured by the white e-pawn on d3 or d4. But the white rook could only escape from the 1st rank after the white e-pawn opened the e-file by capturing the black pawn on d3 or d4.

try 2: C = ♕, I = ♗
before -1...d7xBc6++

A contradiction in retroreality known as a *time loop*.

Therefore C ≠ ♕

C = ♗

I = ♕   Diagram.

In this position, no promotions were needed.

Black is missing 3 pawns. Disregarding the bishop from c1, White is missing a queen and rook.

solution

The last move was either -1...d7xQc6++ or -1...d7xRc6++. In either case, the black king was in check from the piece on c6.

White's previous move was not the non-capture -2.Rc7-c6+ because the white king would be in an impossible check from the queen on a8. Nor was it the non-capture -2.Qb7-c6+ because the black king would already be in check from b7. White's previous move had to be a capture on c6.

Therefore no black pawns promoted. As in the tries with C = ♕, promoting the black e-pawn would require two captures by the white e-pawn, but that is impossible because there is no missing black piece that could have been captured on the e-file.

So the piece that White captured on c6 was a pawn, which was checking the white king. This check could not occur by the advance -2...c7-c6+ because the white king would already be in check by the black queen. The check had to occur by -2...b7xc6+.
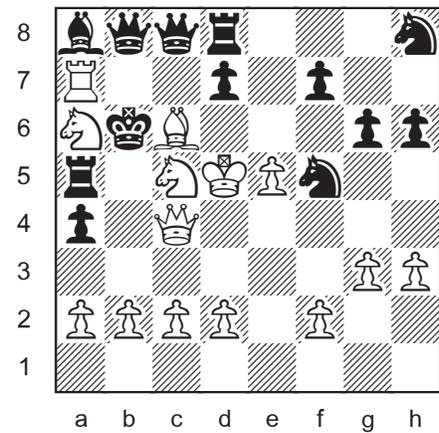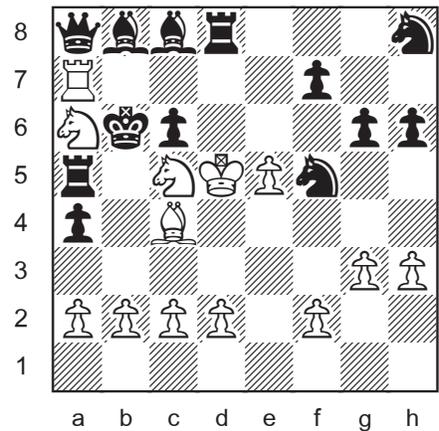
Thus, the missing white queen and rook were both captured on c6. Before Black uncaptured on c6 the second time, the black king was in check by the queen or rook on c6. The same question arises again. How was that check possible? There is only one answer and only one possible line of retroplay, a series of ten consecutive checks.

-1...d7xRc6++ -2.Rf6xc6+ b7xQc6+ -3.Qe6xc6+ c7-c6+ -4.Qe8xe6+ e7-e6+ -5.Ne6-c5+ Kb5-b6+ -6.Bb3-c4+

This diagram shows the position ten moves ago. Forward play goes 1.Bb3-c4+ Kb5-b6+ 2.Ne6-c5+ e7-e6+ 3.Qe8xe6+ c7-c6+ 4.Qe6xc6+ b7xQc6+ 5.Rf6xc6+ d7xRc6++.

position 10 moves ago
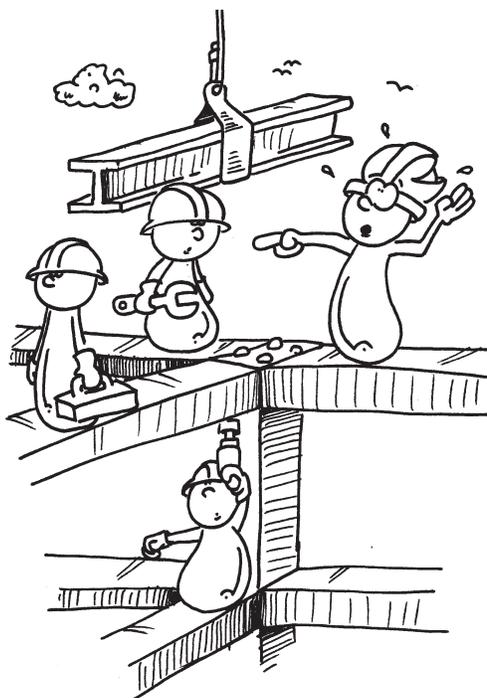
Here is the original problem by Luigi Ceriani (1939). Our rebus version adds a black knight on h8 and shifts the white pawn on h4 to g3. The retro content is thereby augmented by incorporating a *time loop* in the assignment of queen and bishop.
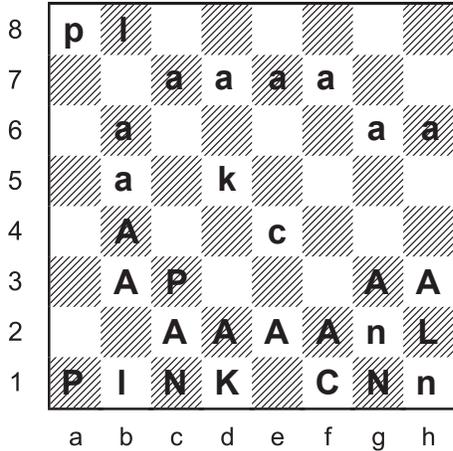
Ceriani 1939
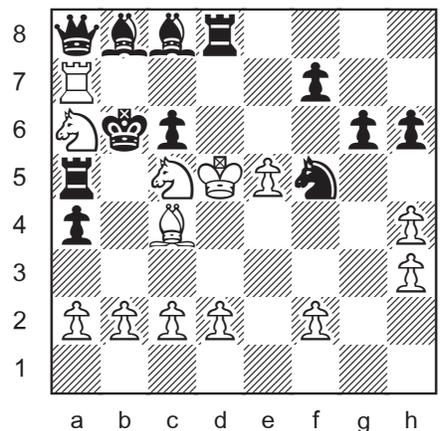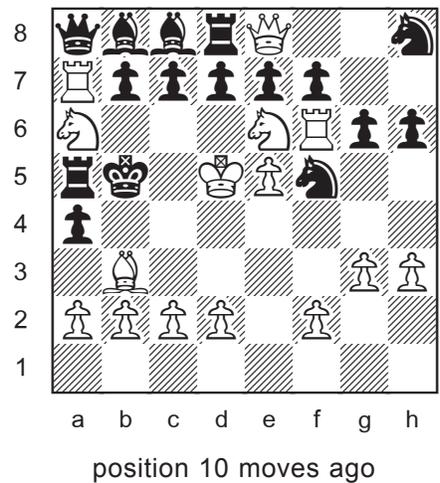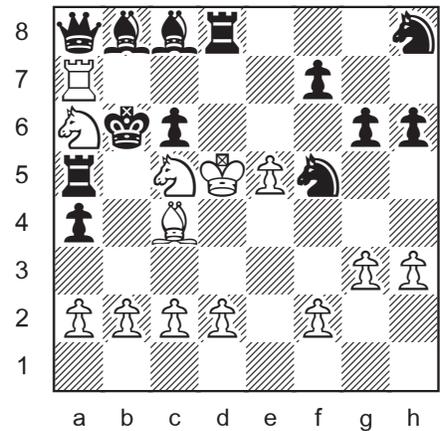
Rebus 72

Andrey Frolkin & Jeff Coakley 2021

Puzzling Side of Chess

Dedicated to Nikita Plaksin on the occasion of his 90th birthday, July 9, 2021.

"*Plakcin*"

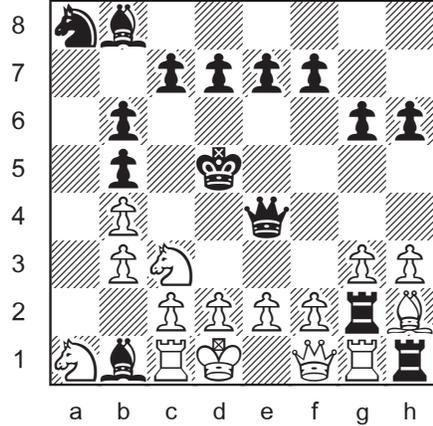P = knight
L = bishop
A = pawn
K = king
C = queen
N = rook

caps = white

last move:
1.Na4-c3+

(15 + 15)

There are 16 A's and 2 missing pieces, one for each side.

A = ♙   caps = white   Other options are obviously impossible.

There were no promotions. Both missing pieces were captured by pawns on the b-file.
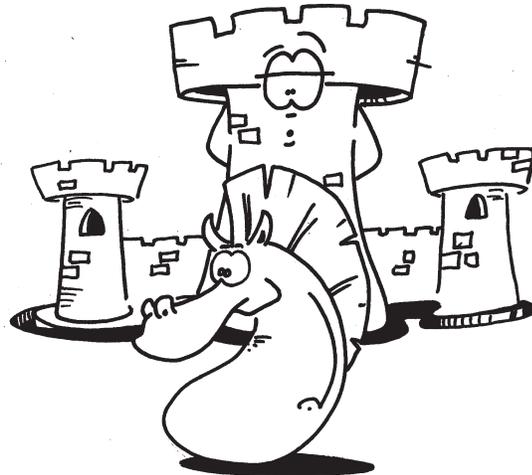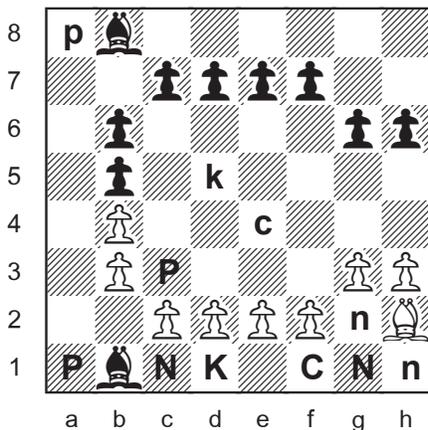
♔♕ = (KC)   Two letters with one uppercase and one lowercase.

L = ♗   N ≠ ♗   Both lowercase N's on light squares.
            P ≠ ♗   Both uppercase P's on dark squares.

White is missing a light-square bishop. It was captured on b5.

♖♘ = (PN)

Rebus 72 *continued*

If P = ♖, the position is illegal because of an impossible time line. With the given pawn formation, a white rook cannot be on c3.

Try 1: P = ♖, N = ♘, K = ♔ (diagram)

Black is missing a rook. That rook was captured on b3 or b4 before a white rook could escape from behind the white pawns.

Before the black rook was captured, the missing white bishop was captured on b5 to allow the rook to escape from behind the black pawns (...a6xBb5).

try 1: N = ♘, P = ♖, K = ♔

Before the white bishop was captured, White played g2-g3 to allow the bishop to escape from f1.

Before g2-g3 was played, the other white bishop had to be on h2.

Before the white bishop moved to h2, White advanced b2-b3 to allow the bishop to escape from c1. White did not play *b2-b4?* because a black bishop could not be on b1 if White captured *a2xRb3*.

The missing black rook was captured on b4 (a3xRb4).

Before White played b2-b3, the black bishop had to be on b1.

Before the black bishop went to b1, Black played ...b7-b6 to allow the bishop to escape from c8.

This long sequence of preconditions shows that before a white rook could escape, the "great pawn barrier reef" was already established on the b-file. A white rook could not cross the pawn barrier to reach c3.
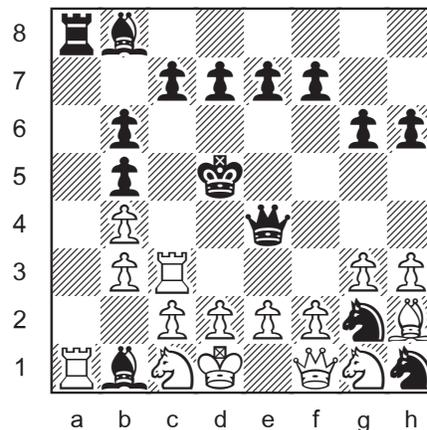
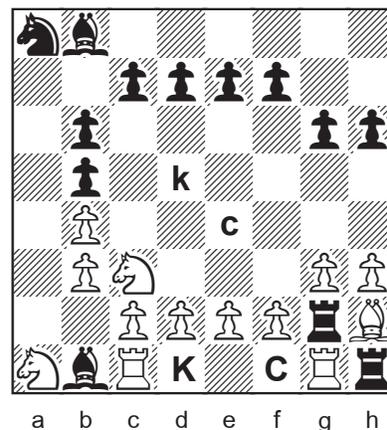The same faulty time line occurs with C = ♔.

Therefore N ≠ ♖

N = ♖

P = ♘

Diagram.

caps = white

The black king (d5 or e4) is in <u>check</u>.
Last move: -**1.Na4-c3+**

If the last move was -1.Na2-c3+?, then
Black cannot retract -1...Ba2-b1 which is
necessary to begin the liberation of the
pieces on the 1st rank. That delay would
make the position illegal because of the
50 move rule. Additionally, the knight
on a2 would have to return to c3 to free
the bishop on b1. Then it would have to
move again to allow the white king to pass
through c3.

caps = white

If C = ♔, the position is illegal because of the <u>50 move rule</u>.
Prior to the knight check on c3, 50 moves must be retracted
before a capture or pawn move is possible.

Try 2: N = ♖, P = ♘, C = ♔ (diagram)

Retract:
-1.Na4-c3+ Ba2-b1 -2.Rb1-c1 Qh5-d5
-3.Rb2-b1 Bb1-a2 -4.Ra2-b2 Kf5-e4
-5.Qc1-d1 Kg5-f5 -6.Qb2-c1 Qh4-h5
-7.Qd4-b2 Kh5-g5 -8.Ke1-f1 Qg4-h4
-9.Kd1-e1 Qh4-g4 -10.Kc1-d1 Qg4-h4
-11.Kb2-c1 Qh4-g4 -12.Kc3-b3 Qg4-h4
-13.Nc5-a4 Qh4-g4 -14.Ra7-a2 Ba2-b1
-15.Rb7-a7 Ba7-b8 -16.Rb1-g1 Qg4-h4
-17.Rb2-b1 Bb1-a2 -18.Ra2-b2 Qh4-g4
-19.Ra6-a2

A critical position (diagram).

-19...Ba2-b1 -20.Rb8-b7 Rb1-h1
-21.Rh8-b8 Bb8-a7 -22.Ra7-a6 Rb2-b1
-23.Rb7-a7 Ba7-b8 -24.Rb8-b7 Bb1-a2
-25.Rg8-b8 Ra2-b2 -26.Rg7-g8 Bb8-a7
-27.Rh7-h8 Ra7-a2 -28.Kd3-c3 Rb7-a7
-29.Qe4-d4 Ba7-b8 -30.Ke3-d3 Rb8-b7
-31.Qc6-e4 Rh8-b8

Diagram next page.

try 2: N = ♖, P = ♘, C = ♔

after -19.Ra6-a2
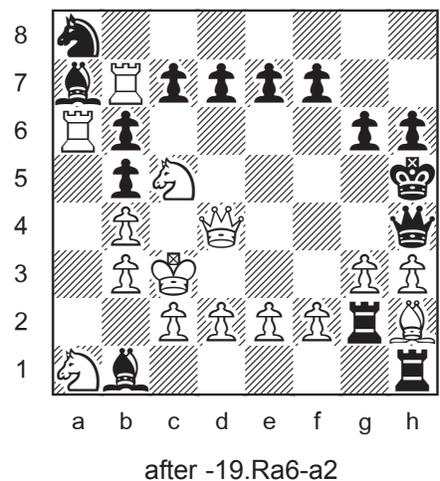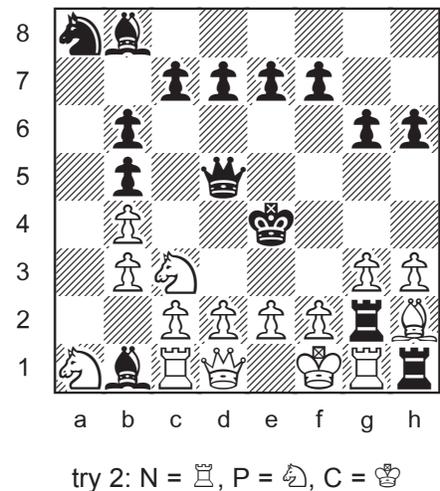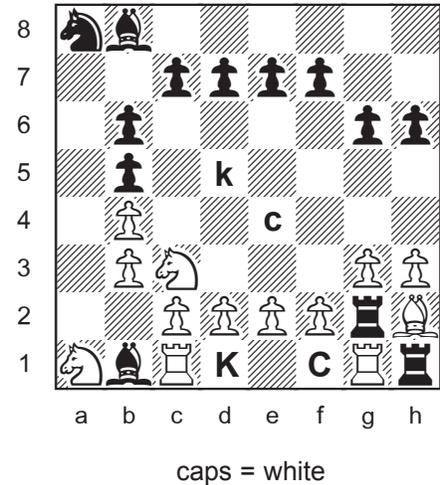
-32.Rg8-g7 Kg5-h5 -33.Rb8-g8 Kh5-g5
-34.Rb7-b8 Bb8-a7 -35.Ra7-b7 Kg5-h5
-36.Ra2-a7 Kh5-g5 -37.Rb2-a2 Ba2-b1
-38.Rb1-b2 Kg5-h5 -39.Rh1-b1 Rg1-g2
-40.Rg7-h7 Rb1-g1 -41.Qg2-c6 Rb2-b1
-42.Qf1-g2 Bb1-a2 -43.Qd1-f1 Ra2-b2
-44.Kf3-e3 Ra7-a2 -45.Kg2-f3 Rb7-a7
-46.Kf1-g2 Ba7-b8 -47.Ke1-f1 Rb8-b7
-48.Nd3-c5 Rh7-h8 -49.Ne5-d3 Rh8-b8
-50.Rg8-g7 Rg7-h7 -51.Rb8-g8 <u>h7-h6</u>

try 2: after -31...Rh8-b8

Therefore the position with C = ♔ is illegal because 50.5 moves were made without a capture or pawn move.

K = ♚   **C = ♕**

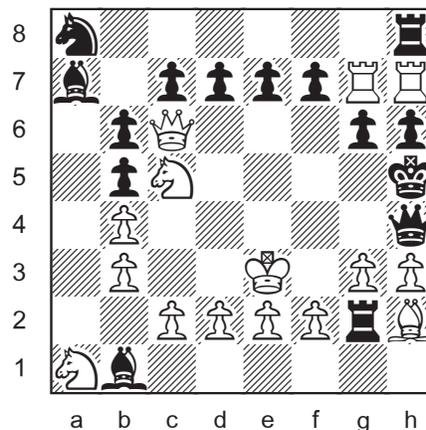The position is legal. It can be reached in 49.5 moves without a capture or pawn move following ...h7-h6.

Retract:
-1.Na4-c3+ Ba2-b1 -2.Rb1-c1 Qh4-e4
-3.Rb2-b1 Bb1-a2 -4.Ra2-b2 Ke5-d5
-5.Kc1-d1 Kf5-e5 -6.Kb2-c1 Kg5-f5
-7.Kc3-b2 Kh5-g5 -8.Kd3-c3 Qg4-h4
-9.Qc1-f1 Qh4-g4 -10.Qb2-c1 Qg4-h4
-11.Qd4-b2 Qh4-g4 -12.Nc5-a4 Qf4-h4
-13.Ra7-a2 Ba2-b1 -14.Rb7-a7 Ba7-b8
-15.Rb1-g1 Qg4-f4 -16.Rb2-b1 Bb1-a2
-17.Ra2-b2 Qh4-g4 -18.Ra6-a2
Diagram next page.
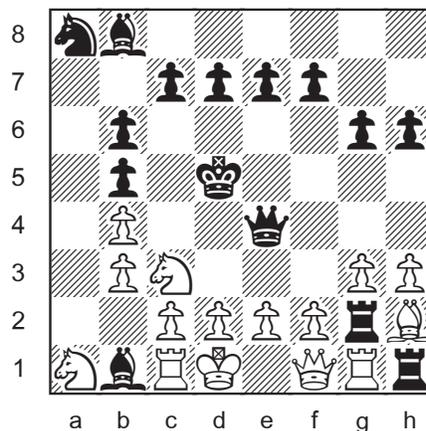
solution: K = ♚

Rebus 72 *continued*

Same position as in try 2 (after -19.Ra6-a2) except the white king is on d3 instead of c3. The king's position does not make a significant difference in the subsequent retroplay.

Because this position is reached one move earlier, Black's ...h7-h6 can be achieved after 49.5 moves are retracted without a capture or pawn move. Therefore the position is legal since an "automatic draw" by the 50 move rule is avoided.
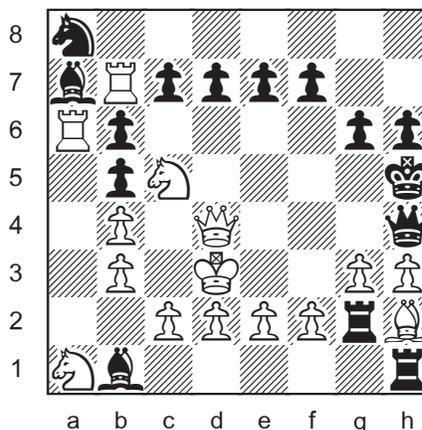
solution: after -18.Ra6-a2

-18...Ba2-b1 -19.Rb8-b7 Rb1-h1 -20.Rh8-b8 Bb8-a7
-21.Ra7-a6 Rb2-b1 -22.Rb7-a7 Ba7-b8 -23.Rb8-b7 Bb1-a2
-24.Rg8-b8 Ra2-b2 -25.Rg7-g8 Bb8-a7 -26.Rh7-h8 Ra7-a2
-27.Ke3-d3 Rb7-a7 -28.Qe4-d4 Ba7-b8 -29.Qe6-e4 Rb8-b7
-30.Qc6-e6 Rh8-b8 -31.Rg8-g7 Kg5-h5 -32.Rb8-g8 Kh5-g5
-33.Rb7-b8 Bb8-a7 -34.Ra7-b7 Kg5-h5 -35.Ra2-a7 Kh5-g5
-36.Rb2-a2 Ba2-b1 -37.Rb1-b2 Kg5-h5 -38.Rh1-b1 Rg1-g2
-39.Rg7-h7 Rb1-g1 -40.Qg2-c6 Rb2-b1 -41.Qf1-g2 Bb1-a2
-42.Qd1-f1 Ra2-b2 -43.Kf3-e3 Ra7-a2 -44.Kg2-f3 Rb7-a7
-45.Kf1-g2 Ba7-b8 -46.Ke1-f1 Rb8-b7 -47.Nd3-c5 Rh7-h8
-48.Ne5-d3 Rh8-b8 -49.Rg8-g7 Rg7-h7 -50.Rb8-g8 <u>h7-h6</u>
Diagram

Then -51.Rb7-b8 Bb8-a7 -52.Ra7-b7 Kf6-g5 -53.Ra2-a7 a6xBb5 and so on.

For forward thinkers, from the diagram: 1...h6 2.Rg8 Rgh7
3.Rg7 Rb8 4.Nd3 Rhh8 5.Nc5 Rb7 6.Kf1 Bb8 7.Kg2 Ra7
8.Kf3 Ra2 9.Ke3 Rb2 10.Qf1 Ba2 11.Qg2 Rb1 12.Qc6 Rg1
13.Rh7 Rg2 14.Rb1 Kh5 15.Rb2 Bb1 16.Ra2 Kg5 17.Ra7 Kh5
18.Rb7 Ba7 19.Rb8 Kg5 20.Rg8 Kh5 21.Rgg7 Rb8 22.Qe6 Rb7
23.Qe4 Bb8 24.Qd4 Ra7 25.Kd3 Ra2 26.Rh8 Ba7 27.Rgg8 Rb2
28.Rb8 Ba2 29.Rb7 Bb8 30.Ra7 Rb1 31.Ra6 Ba7 32.Rb8 Rh1
33.Rb7 Bb1 34.Ra2 Qg4 35.Rb2 Ba2 36.Rb1 Qf4 37.Rg1 Bb8
38.Ra7 Bb1 39.Ra2 Qh4 40.Na4 Qg4 41.Qb2 Qh4 42.Qc1 Qg4
43.Qf1 Qh4 44.Kc3 Kg5 45.Kb2 Kf5 46.Kc1 Ke5 47.Kd1 Kd5
48.Rb2 Ba2 49.Rb1 Qe4 50.Rc1 Bb1 51.Nc3+
Rebus position, achieved in 49.5 moves after 1...h6.
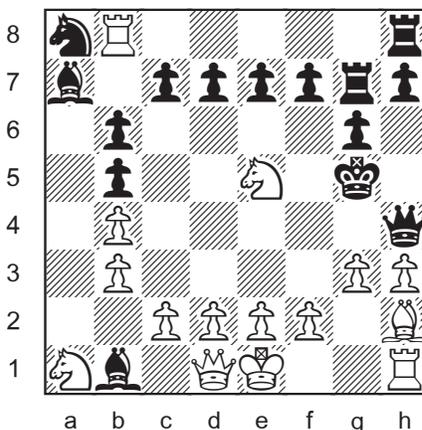
solution: after -50...h7-h6

As a composition, the position after 51.Nc3+ is drawn by dead reckoning. Any move by the black king would result in a draw by the 50 move rule.

For a companion rebus with a similar theme, see the latest issue of *Die Schwalbe* (August 2021, #310, problem 18682). But please note that there is a diagram error. The letter on a1 should be a small 'p'.
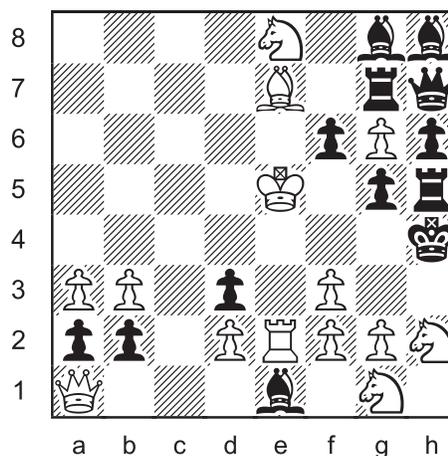
Rebus 73

Andrey Frolkin & Jeff Coakley 2021
Puzzling Side of Chess
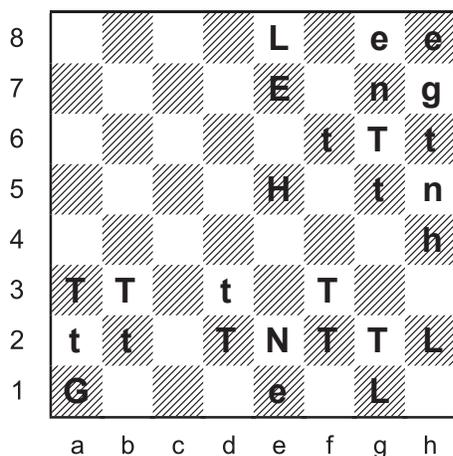
"length"

L = knight
E = bishop
N = rook
G = queen
T = pawn
H = king

caps = white

(14 + 13)

46 exactly determined last moves, a rebus record!

Letter count: 3L 1E 1N 1G 7T 1H   (14)
            3e 2n 1g 6t 1h   (13)

♚ = (GH) Letters with one upper, one lowercase.

LEG ≠ ♙   On 1st or 8th rank.

N ≠ ♙   If N = ♙

There are at least 11 promoted pieces (9T, 1E, 1L) and 3 passed pawns, a total of 14 pro-passers. The 5 missing pieces (3 pawns and 2 officers) are insufficient to explain 14 pro-passers.

[*For an explanation of pro-passer theory, see column 188, page 11*.]

H ≠ ♙   If H = ♙
G = ♚
♕ = (LENT)
There are 12 promoted pieces (9T, 1E, 1L, plus an additional queen regardless of piece assignment) and 2 passed pawns, a total of 14 pro-passers. The 5 missing pieces (2 pawns and 3 officers) are insufficient to explain 14 pro-passers.

T = ♙

last moves:
-1. ...   f7-f6+
-2. Nd6-e8!   d4-d3
-3. Nc8-d6   d5-d4
-4. Kd4-e5   d6-d5
-5. Bf6-e7   d7-d6
-6. Re8-e2   e2-e1=B
-7. c7-c8=N   e3-e2
-8. c6-c7   e4-e3
-9. Ke3-d4   e5-e4
-10. c5-c6   e6-e5
-11. c4-c5   e7-e6
-12. c2-c4   c3xRb2
-13. Qd1-a1   c4-c3
-14. Rb1-b2   c5-c4
-15. Bb2-f6   c6-c5
-16. Bc1-b2   c7-c6
-17. b2-b3   b3xBa2
-18. Ke2-e3   b4-b3
-19. Bb3-a2   b5-b4
-20. Ba4-b3   b6-b5
-21. Bb5xPa4   a5-a4
-22. Ke1-e2   a6-a5
-23. Bf1-b5   a7-a6
-24. e2xNf3   N~-f3+

Rebus 73 *continued*

If caps = black

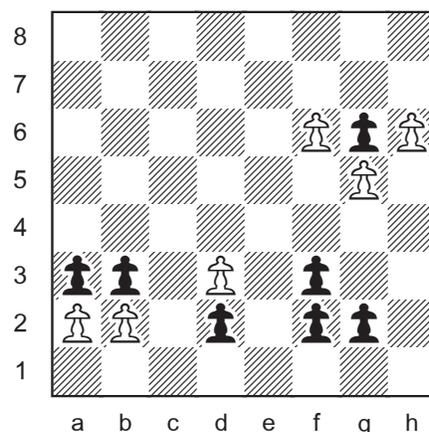The resulting pawn formation requires 5 captures. See diagram.

There are 5 missing pieces. Consider the necessary captures in each of the 4 sectors.

> ab-sector: 0 captures
> cd-sector: 2 captures
> ef-sector: 2 captures
> gh-sector: 1 capture

pawn formation if caps = black

In the gh-sector, Black played ...hxg.

In the ef-sector, the pawn formation could only be achieved with 2 captures if one of the captures was ...exPf by Black, capturing the original white f-pawn on the f-file. The other capture would be exf by White, capturing an officer. Thus, the only possible promotions occurred with pawns from the cd-sector.

The pawns from the cd-sector could only yield 2 promotions if both captures were made by the same side. However, on the efgh-files, there were 2 captures by Black and 1 capture by White. The missing pieces that remain are 1 white and 1 black. Hence, both captures in the cd-sector could not be made by the same side and there could only have been one promotion.

There are at least two promoted pieces on the board (L and E).

Therefore caps ≠ black.

caps = white
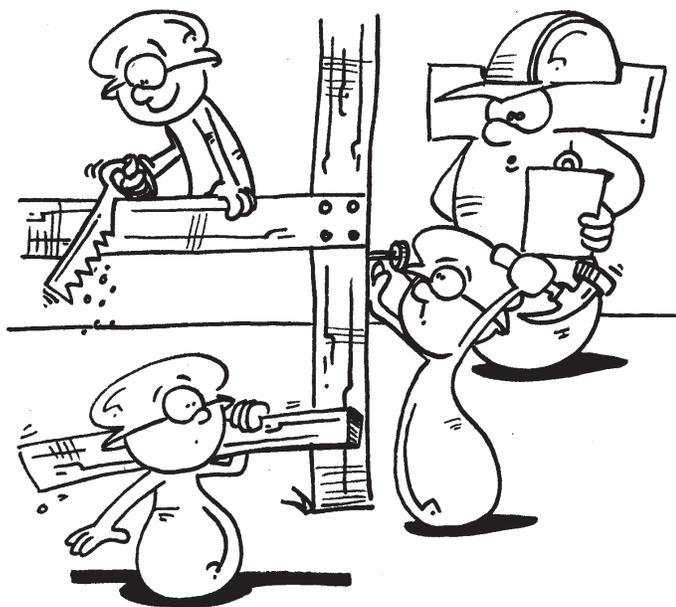
The pawn formation on the ab-files with an empty c-file required 3 captures, regardless of whether the original black a-pawn is still on the board or was captured on the a-file. The other 2 captures were made by White on the fg-files (e2xf3 and h5xg6). This accounts for all 5 missing pieces.
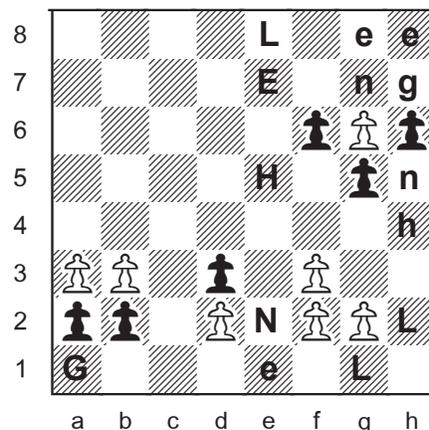
H = ♚	If G = ♔	Impossible check by pawn g6. The move f5xg6+ would require 2 extra captures by White.

The white king (e5) is in <u>check</u> by the pawn on f6.

Last move: **-1...f7-f6+**

L = ♘	L ≠ ♕♖	Both kings in check (f6 h2).
	L ≠ ♗	If L = ♗ White has a promoted dark-square bishop. This could occur if the original white b-pawn promoted on b8 and the c-pawn captured on b3 (c2xb3). In that case, all captures by White were made on light squares (c3 f3 g6). So the black dark-square bishop must still be on the board. However, if L = ♗, both black bishops are missing.
N = ♖	N ≠ ♕♗	Before 1...f7-f6+, White would be in check (g7) with Black to move.
E ≠ ♕	If E = ♕	
	G = ♗	
		There are two promoted black queens which is only possible if Black promoted by ...c1=Q and ...e1=Q. That would require the following captures by pawns on the abc-files: white c2xb3, black ...axb and ...b3xa2. Thus, all three captures by White would be on light squares (b3 f3 g6). Therefore the black dark-square bishop would still be on the board. However, the only black bishop (G) is light. So E ≠ ♕

E = ♗

G = ♕

Piece assignment and colours are solved.

Rebus 73 *continued*

So what were the last 46 moves?

After -1...f7-f6+ is retracted (diagram), there is a cage on the kingside which can only be released by ...Kg4-h4. Before that king move is retracted, White must uncapture on f3 and at that point, White's missing light-square bishop must be on f1.

The cage has to be released before retrostalemate occurs when the retraction of black pawn moves is exhausted.

position before 1...f7-f6+

White has a promoted knight and is missing a rook and light-square bishop. Black has a promoted bishop and is missing two knights and a pawn.

Two black pieces were captured by white pawns on f3 and g6. Black promoted a bishop on e1 and White promoted a knight on c8.

The only explanation for a white promotion on c8 and the inverted pawns on the ab-files is that black pawns captured the 2 missing white pieces by ...cxb2 and ...bxa2. The light-square bishop was taken on a2 and the rook on b2. That leaves the original black a-pawn unaccounted for. It could not promote so it was captured on the a-file. That means that the black knights were captured on f3 and g6.

The uncapture on a2 (...b3xBa2) must be preceded by the retraction of the white b-pawn to b2. At that time, White must have their dark-square bishop on c1 and a rook on a1 or b1. Otherwise those pieces will not be able to retract to their home squares with white pawns on a3 b2 d2.

The uncapture on b2 (...c3xRb2) must be preceded by the retraction of the white c-pawn to c2.

Black has 4 retractions with the d-pawn and 6 retractions with the e-pawn (including unpromotion on e1). To avoid retrostalemate, White must unpromote on c8 and return the c-pawn to c2 by the time the black ed-pawns reach d7 e7. White retractions must also clear the e-file for the black e-pawn's retreat. To accomplish that in the least number of moves, the white rook will need to retract to the 8th rank.

It can be noted here that when e2xf3 is retracted (after white pawns are back on b2 and c2), the white queen and king must be on d1 and e1. There is no reverse time to waste. White must unplay precisely to get things undone legally.
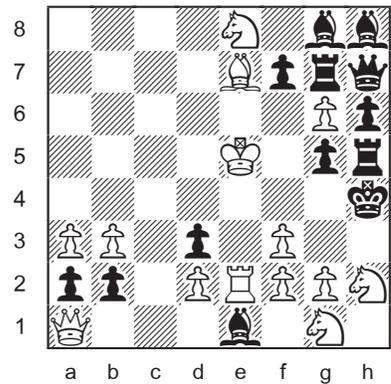
Rebus 73 *continued*

Everything is clear now except the fate of the original black a-pawn. It must be uncaptured to give Black more retractions. As will be seen as the retroplay unfolds, it is uncaptured by the white light-square bishop on its way from a2 back to f1. (It cannot be uncaptured by the white rook because a rook on a4 would be checking the black king along the 4th rank.)
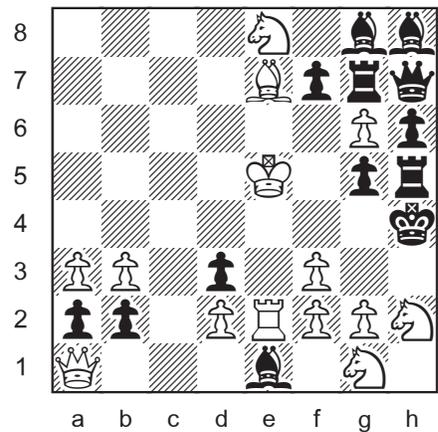
Surprisingly, after -1...f7-f6+, the only white retraction that works is -2.Nd6-e8!, getting the knight to c8 as soon as possible. (The line *-2.Bf6-e7? d4-d3 -3.Nd6-e8 d5-d4 -4.Kd4-e5* is retrostalemate as *-4.Nc8-d6* fails because *-4...d6-d5* is check to the white king.)

That is followed by -2...d4-d3 -3.Nc8-d6 d5-d4 -4.Kd4-e5. The king cannot be on e5 when the black pawn retracts to d6. The further clearance of the e-file is accomplished after -4...d6-d5 -5.Bf6-e7 d7-d6 -6.Re8-e2. Diagram.

Now as the black e-pawn unpromotes and returns to e7, the white c-pawn unknights and rushes back to c2.

-6...e2-e1=B -7.c7-c8=S e3-e2 -8.c6-c7 e4-e3 -9.Ke3-d4

The king cannot be on d4 when the black pawn retracts to e5.

-9...e5-e4 -10.c5-c6 e6-e5 -11.c4-c5 e7-e6 -12.c2-c4

Diagram.

Next is -12...c3xRb2. Then, as the black c-pawn heads back to c7, the white queen and bishop return to their original squares prior to the retreat of the b-pawn.

-13.Qd1-a1 c4-c3 -14.Rb1-b2 c5-c4 -15.Bb2-f6 c6-c5 -16.Bc1-b2 c7-c6 -17.b2-b3

*after -6.Re8-e2*

after -12.c2-c4

Rebus 73 *continued*

Now Black uncaptures on a2 and retracts the b-pawn to b6. It cannot go back to b7 because the black light-square bishop must first get to c8. Meanwhile, White arranges the uncapture of the original black a-pawn. -17...a3xBa2 -18.Ke2-e3 Making his way towards home. -18...b4-b3 -19.Bb3-a2 b5-b4 -20.Ba4-b3 b6-b5 -21.Bb5xPa4! This uncapture gives Black 3 more retractions.

-21...a5-a4 -22.Ke1-e2 a6-a5 -23.Bf1-b4 a7-a6 -24.e2xNf3 Diagram.

The black knight now unchecks (-24...Nf3+), and on the next retraction by Black, the king can release the cage (-25...Kg4-h4).

Forward play from the diagram is:
1.exf3 a6 2.Bb5 a5 3.Ke2 a4 4.Bxa4 b5
5.Bb3 b4 6.Ba2 b3 7.Ke3 bxa2 8.b3 c6
9.Bb2 c5 10.Bf6 c4 11.Rb2 c3 12.Qa1 cxb2
13.c4 e6 14.c5 e5 15.c6 e4 16.Kd4 e3
17.c7 e2 18.c8=N e1=B 19.Re2 d6 20.Be7 d5
21.Ke5 d4 22.Nd6 d3 23.Ne8 f6+

after -17.b2-b3

after -24.e2xNf3
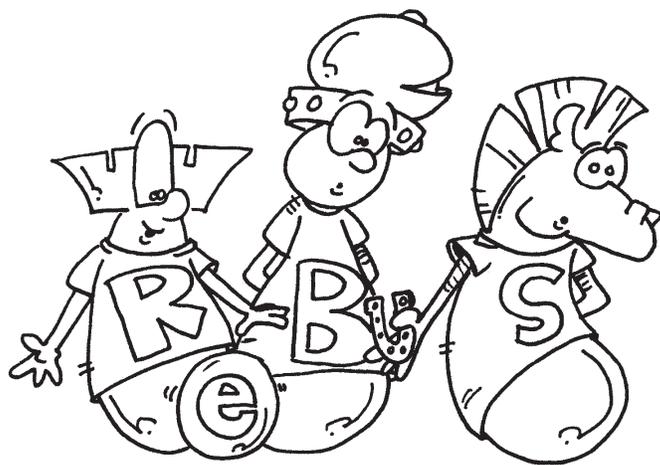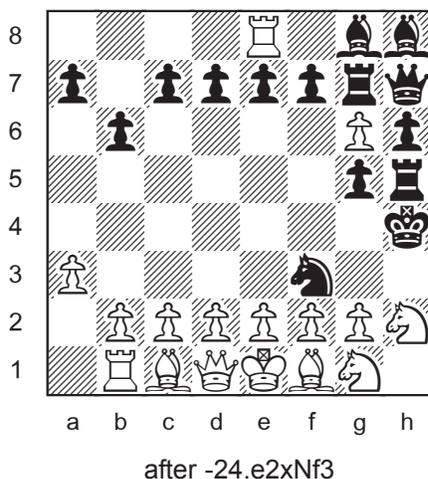
We hope you enjoyed the puzzles.

An index of rebus problems and articles published by Andrey Frolkin and Jeff Coakley since 2016 is available in the archives (column 188).