THE PUZZLING SIDE OF CHESS
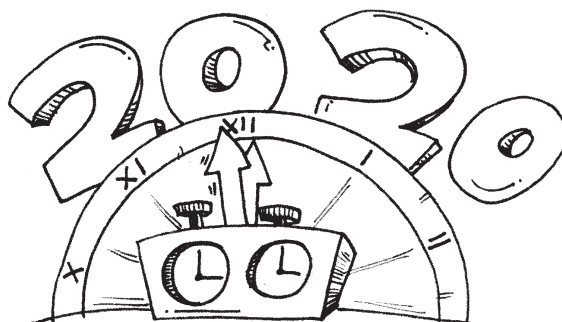
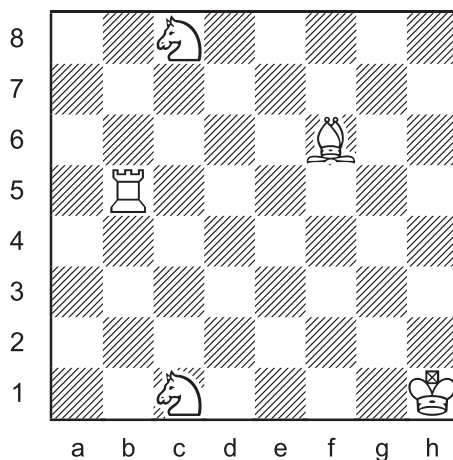**Jeff Coakley**

TWENTY TWENTY

number 185   December 31, 2019

One day I woke up in the future and found myself living in the year 2020. A strange tale of science fiction. Or am I really here?

This column rings in the new year with an eight board smorgasbord of puzzles and a sideline of insight into 20/20 vision. Cheers!
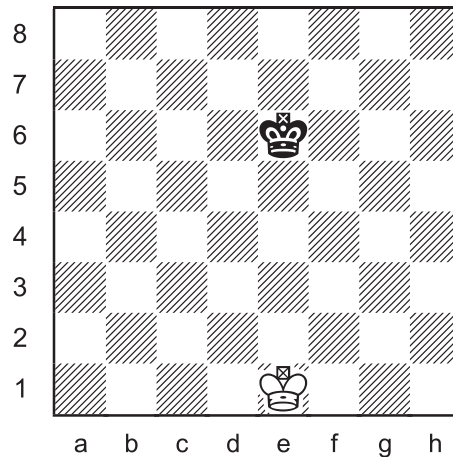
Triple Loyd 81

Place the black king on the board so that:
    A. Black is in checkmate.
    B. Black is in stalemate.
    C. White has mate in 1.

Inverted Loyd 57

Place three white pawns
so that White has mate in 1.

20/20

Sharpness of vision is measured with a Snellen eye chart, invented in 1862 by Dutch ophthalmologist Herman Snellen.

The chart is viewed at a distance of 20 feet and the subject's ability to read letters of different sizes is compared to that of people with good vision. If you can read at 20 feet what a normal person can read at 20 feet, then your eyesight is 20/20.

Obviously, not everyone meets the norm. Many people require glasses to improve their vision. If your eyesight is 20/25, that means that you have to be 20 feet from something to see what normal folk can see at 25 feet.

The two extremes of human vision are the ultrasharp 20/8 and the legally blind 20/200.

In much of the world, eyesight is measured by a fraction with numerator 6 metres. Good vision is 6/6. Same method, different units.

Did you know that the only letters used on traditional eye charts are C, D, E, F, L, N, O, P, T, Z?
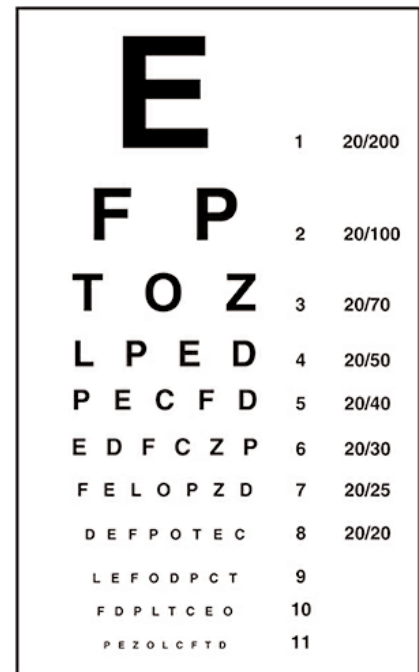
Surprisingly, the following construction task does not appear in any of the standard references for this sort of thing. For example, it is not covered in *Ultimate Themes* (1938) by T. R. Dawson or *A Guide To Fairy Chess* (1969) by Anthony Dickens. But surely someone has done it before.

Get Out of Check Maximizer
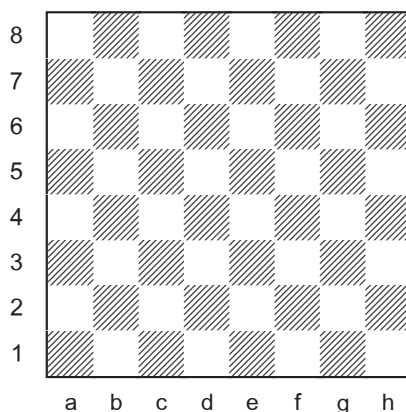
Construct a position in which
White has the most moves to get out of check.

The position must be legal, which means *reachable in an actual game*.


Eagle Eye

Human eyesight is superior to most animals. But not to birds of prey. It is estimated that an eagle's vision is 20/4, five times sharper than ours. The majestic bird also sees colours more vividly.

Their relatively large eyes take up half of an eagle's headspace!

On the *Puzzling Side*, the regular length of proof games is four moves by each side. Anything more is labelled "longer". Here's one in five.

Longer Proof Game 76   (5.0 moves)
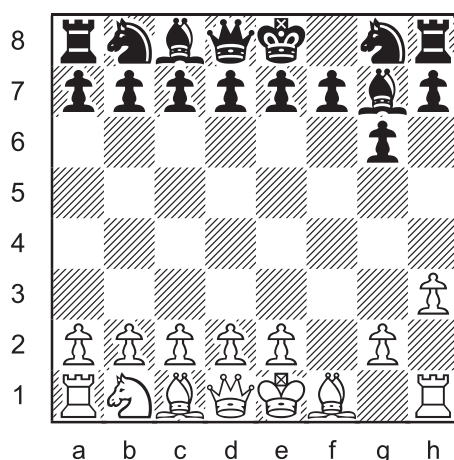
This position was reached after
Black's <u>fifth</u> turn. What were the moves?

Horse Eyes

Animals don't wear glasses, but maybe they should. Their visual acuity is much less than humans. Horses 20/60, dogs 20/75, cats 20/100. They are also colour blind, seeing reds as shades of green.

But horses have one advantage over us. The placement of their eyes allows them to see 350 degrees without moving their head!

The next puzzle is a rerun of a *mate maximizer* task from column 59. The reason is the usual one. A new record has been set. This time by *Caïsay*, the clever chess engine of Adrian Storisteanu.

The new mark for two queens is 15 mates in 1. The record for three queens remains the same.

<u>Queenfest 03</u>

MATE MAXIMIZER
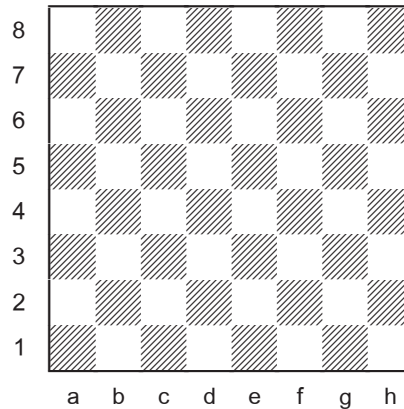
Construct a position with the following pieces
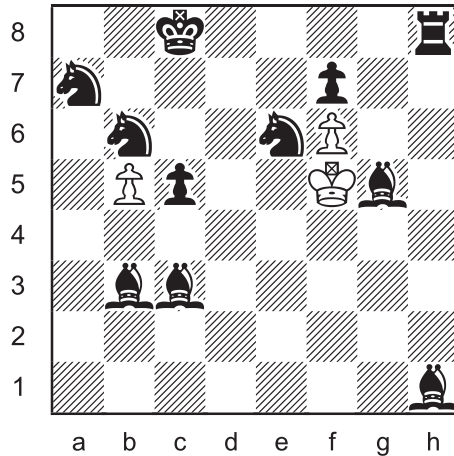so that White has the most mates in 1.

A. ♚ ♔ ♕ ♕

B. ♚ ♔ ♕ ♕ ♕

Fifty years ago, a number 1 hit on the Billboard charts was a song by Dennis Zager and Richard Evans called *In the Year 2525.*

"If man is still alive, if woman can survive ..."
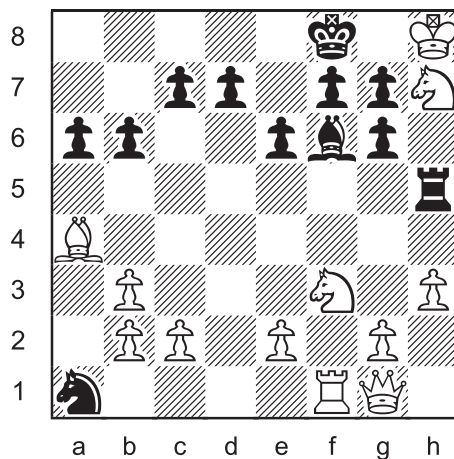
Multi-Wham 46

series-mate in 29

White plays twenty-nine moves
in a row 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.
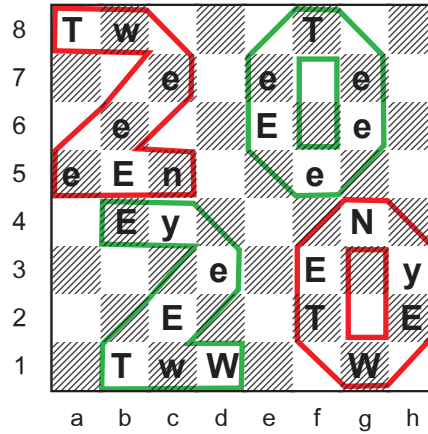

Who's the Goof? 37

Why is this position illegal?

For complex "goofs" like this, the solution is normally a logical argument that proves a contradiction. Identifying a particular piece as the offending party is not usually possible.

We close out the year with a colourful rebus. The letters spell both "twenty twenty" and "20/20"!
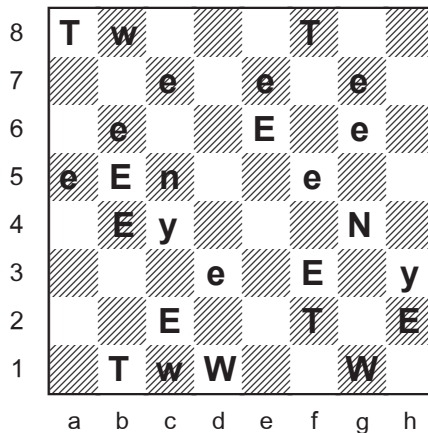
Rebus 25

"Twenty Twenty"

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

If you prefer solving without the colours, here's the plain diagram.

*Do you see how these pictures measure mental acuity?*

SOLUTIONS

All problems by J. Coakley. The *queen mate maximizer* is from *Winning Chess Puzzles For Kids Volume 2* (2010). The others are *Puzzling Side of Chess* (2019). Rebus 25 is a joint composition with Andrey Frolkin. The record solution for the *two queen mate maximizer* is by Caïsay 4.0 (Adrian Storisteanu).

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.
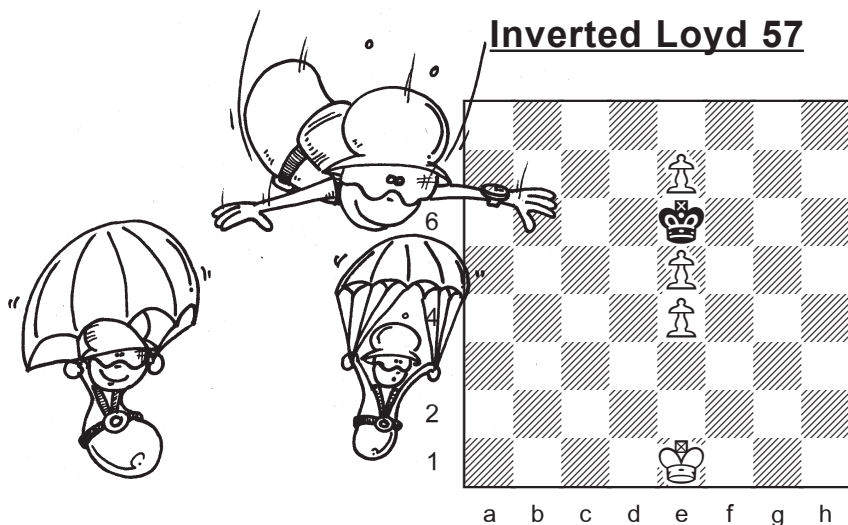
Archives. Past columns are available in the *Puzzling Side* archives.

Triple Loyd 81
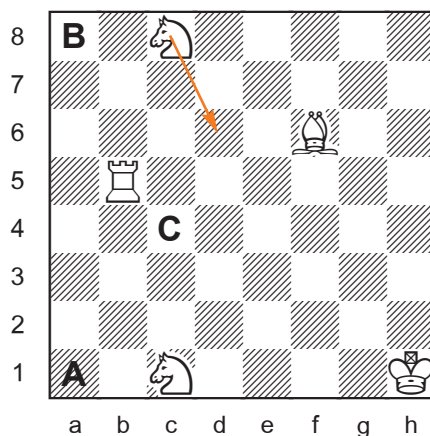
A. Ka1#

B. Ka8 =

C. Kc4 (Nd6#)

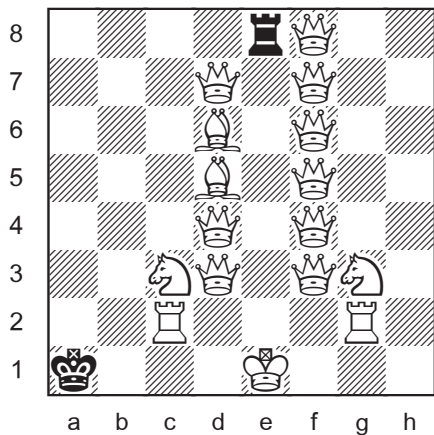Explosive c4.

Inverted Loyd 57

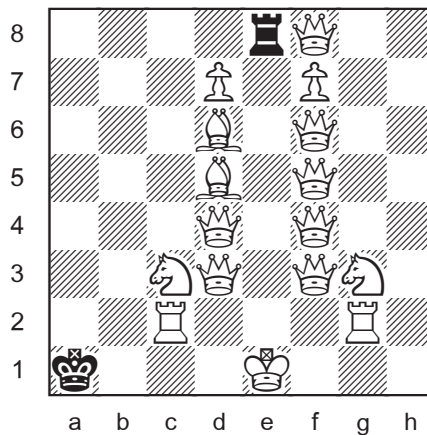

e4, e5, e7 were added.

1.e8=Q#

Three pawns in a queue.

Get Out of Check Maximizer

40 moves to get out of check

Q26 + K4 + B4 + N4 + R2

42 moves to get out of check

Q20 + K4 + B4 + N4 + R2 + P8

In the position on the right, each promotion on e8 to a different kind of piece counts separately. That is, there are four moves by the pawn on f7 to get out check. 1.fxe8=Q, 1.fxe8=R, 1.fxe8=B, 1.fxe8=N. This way of counting is the convention in chess problems.

The theoretical maximum is evidently 43, with all queens having 3 moves. Is it possible?
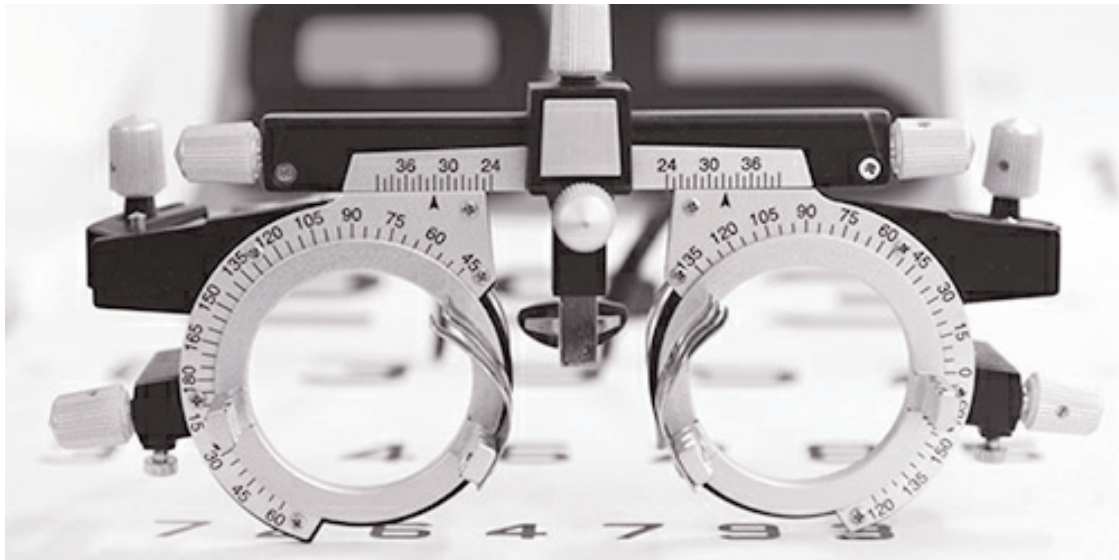
[*April 2021 diagram correction: white rooks on c2 g2.*]

Longer Proof Game 76   (5.0 moves)
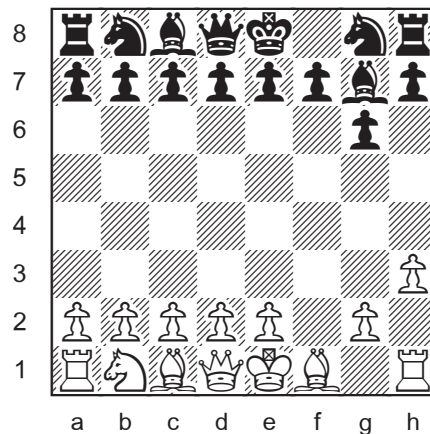
1.f3 g6 2.f4 Bh6 3.Nf3 Bxf4 4.Ne5 Bxe5 5.h3 Bg7

F-pawn tempo and roundabout bishop!

(If you like retractors, Black could have played 5...Bg3#!)

Want to stump somebody at the next spelling bee? Here's your word.

ophthalmology

The "science of eyes" from Greek 'ophthalmos' (eye) and 'logia' (study). The string of letters -phth- is sure to eliminate a few competitors. And if that doesn't get them, maybe the L before the M will.

An ophthalmologist is a medical doctor specializing in the field of eye disorders. Unlike 'optometrist' or 'optic nerve', the consonant sound in the first syllable is not a P. It's an F. But many people, including me, still pronounce it "*op-thalmologist*", replacing "f" with "p".
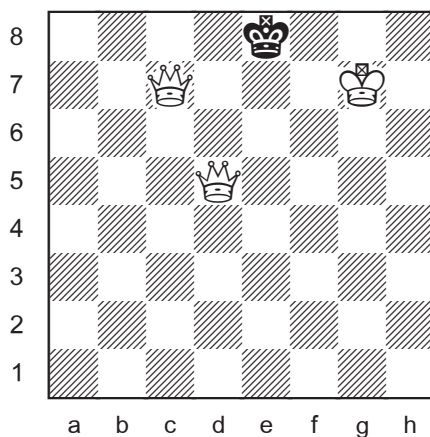
Queenfest 03
MATE MAXIMIZER
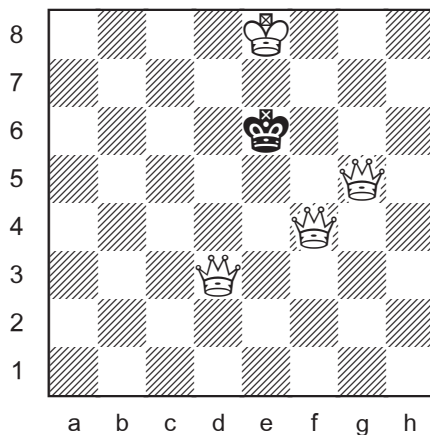### A. Two Queens
Adrian Storisteanu 2019
Scholar's Mate 146

15 mates in 1

Qa8#	Qb5#	Qdc6#	Qcd7#	Qdd7#
Qcd8#	Qdd8#	Qe4#	Qce5#	Qde5
Qe6#	Qcf7#	Qdf7#	Qg8#	Qh5#

This breaks the old record of 14 from *Puzzling Side* column 59 and *Winning Chess Puzzles For Kids Volume 2* (2010).

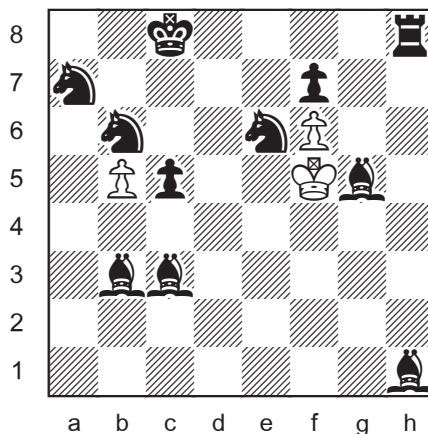### B. Three Queens
Jeff Coakley 2010
Winning Chess Puzzles For Kids Volume 2

30 mates in 1
(12 + 9 + 9)

The position is legal, based on an *en passant* capture. The last moves (with ♚d6, ♟e7, ♙d5) were 1...e7-e5 2.d5xe6+ e.p. Kd6xe6. Caïsay determined this to be a unique solution! And also verified the records in column 59 for positions with 4 and 5 queens.

Multi-Wham 46

series-mate in 29

The first six moves are more or less forced, eliminating the bishop on c3 that prevents the king's passage through e5.
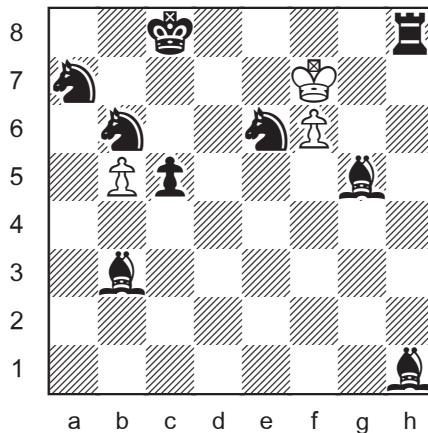
1.Kg4 2.Kg3 3.Kf2 4.Ke2 5.Kd3 6.Kxc3

Now a long and winding journey to f7, freeing the f-pawn. No need to take the bishop on b3.

7.Kd3 8.Ke2 9.Kf2 10.Kg3 11.Kg4 12.Kf5
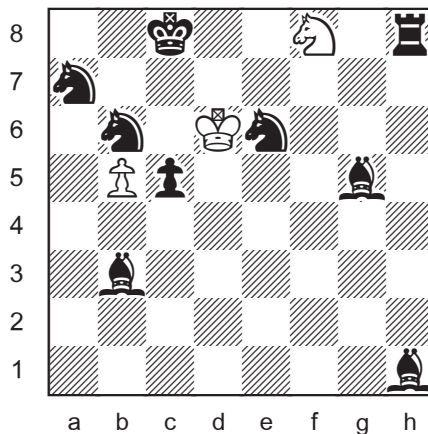
Back to where he started.

13.Ke5 14.Kd6 15.Ke7 16.Kxf7

Before the f-pawn can advance, the king must go to d6.

17.Ke7 18.Kd6 19.f7 20.f8=N!

Underpromotions are the norm in series-mates.

Promoting to bishop takes two moves too many.
> (*For example, 20.f8=B 21.Be7 22.Bd8 23.Bxb6 24.Bc7 25.b6*
> *26.bxa7 27.a8=B 28.Bxh1 29.Ba8 30.Kc6 31.Bb7#*)

21.Nxe6   The knight removes the defender of c5 and takes his
        place for the coming mate.

22.Kxc5 23.Kxb6 24.Ka6 25.b6 26.bxa7 27.a8=N!
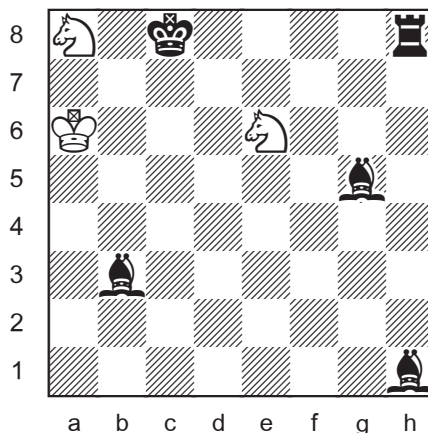
A second knight for mate in 2! A bishop is too slow.
> (*27.a8=B 28.Bd5 29.Bxb3 30.Nd4 31.Nc6 32.Kb6 33.Be6#*)

28.Ka7   Following in the path of the pawn to cover b8.

29.Nb6#   The ever popular crowd-pleasing two knight mate!

MMXX

Who's the Goof? 37

(12 + 12)

As might be guessed, the goof involves the check by the knight at h7 and the earlier position before it got there from g5. Was the knight move a capture or not? Retroanalysis proves that neither possiblity is possible.
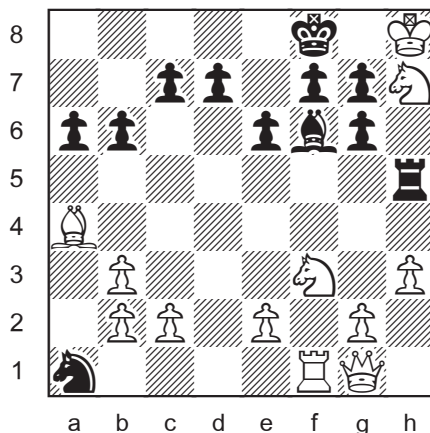
Let's start by eliminating a capture on h7. 1.Ng5-h7+ was not a capture because all missing black pieces were taken elsewhere.

Black is missing 4 pieces. One was captured by the doubled pawn on b3. Because of the unmoved pawns on e2 and g2, we know that the bishop on a4 is a promoted pawn. To escape the last rank, it had to promote on a8 or c8. For the missing d-pawn to reach either of those squares required 3 captures. That accounts for all the missing black pieces. So no capture was made on h7.

This means that prior to 1.Ng5-h7+, the white king was in check by the rook at h5. Once again there are two impossible possibilities. The previous move was either the discovered check ...hxg6+ or the capture ...Rh4xh5+. If the rook moved from h4, it had to be a capture or else the white king was already in check.

The discovered check ...hxg6+ was not the previous move by Black because then it would be impossible to have a white king on h8 inside the black wall of pawns <u>and</u> at the same time have a black rook at h5 outside of the black wall.

The white king could reach h8 through a6 and b7 and along the last rank after the move ...b7-b6. The black rook could reach h5 by escaping from the last rank after ...axb6 or ...bxa6 (before the other pawn captured on a6 or b6). But only one of these happenings could happen. The king's entry and the rook's exit are mutually exclusive.
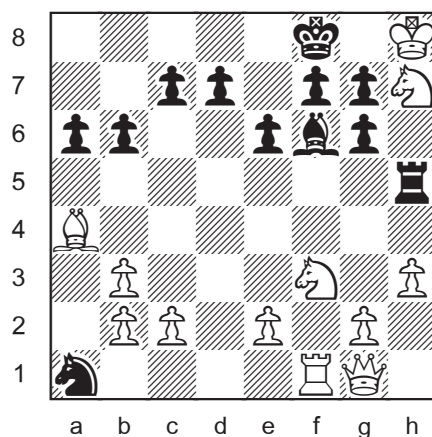
(12 + 12)

The previous move by Black was not the capture …Rh4xh5+ because the only missing white piece available for capture is a dark-square bishop and h5 is a light square.

White is missing 4 pieces. One of them is the original light-square bishop which, because of the unmoved pawns on e2 and g2, must have been captured on f1. The missing white f-pawn was captured somewhere on the f-file. It could not leave the f-file or promote since that would require a capture and all missing black pieces were captured by other white pawns.

The other two missing white pieces are a rook and the dark-square bishop. The rook was captured on the light square g6 by the black h-pawn. That leaves the dark-square bishop which could not be captured on h5.

Therefore no possibility is possible. The position is illegal.

So who is the goof? Perhaps we should indict the black rook. But is the white king any less to blame? Or how about the knight on h7? The list of suspects is long.

Let's just say that there has been illegal activity and that no arrests are anticipated.
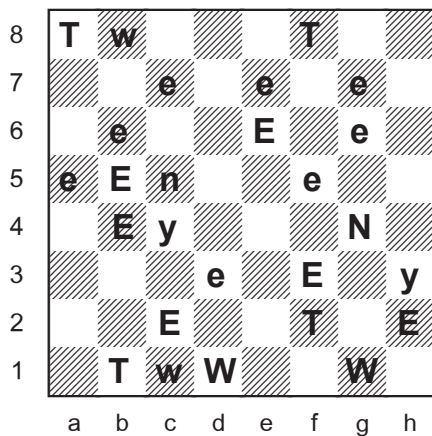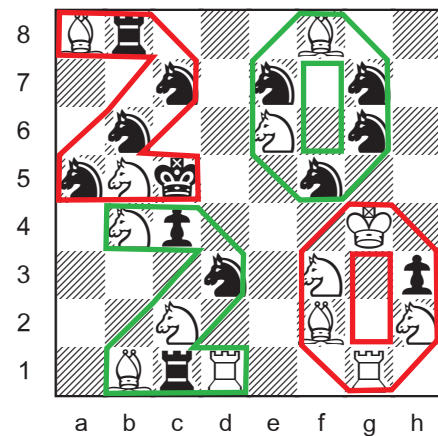
Rebus 25

Andrey Frolkin & Jeff Coakley 2019
Puzzling Side of Chess
"Twenty Twenty"

T = bishop
W = rook
E = knight
N = king
Y = pawn

caps = white

last move:
1.Nd4-f6++

(13 + 13)

N = ♚   Only letter with one uppercase, one lowercase.

E ≠ ♙   If caps = white, then both kings would be in check.

If caps = black, then there are 14 passed pawns
plus 2 promoted pieces (T's). This would require the
capture of at least 8 pieces and there are only 6
missing pieces.

E ≠ ♕♖   Both kings in check (b5 g6).

E ≠ ♗   Both kings in check (b4 f5).

E = ♞   <u>Check</u> (e6).

Y ≠ ♕♖   Both kings in check (b4 e6).

Y ≠ ♗   Both kings in check (e6 h3).

Y = ♙

caps = white   If caps = black, both kings in check (white pawn h3).

Now things get tricky. To determine piece assignment for T and W,
we must consider the number of promoted pieces, passed pawns,
and missing pieces.

There are 10 promoted knights (4E 6e) and 2 passed pawns. Plus at
least 2 promoted T's. So there are at most 2 missing pawns.

There are a total of 6 missing pieces, 2 pawns and 4 officers. This is
exactly enough to account for the number of captures necessary to
create 14 "pro-passers" (promoted pieces + passed pawns).

Each 'pawn x pawn' capture can create 3 pro-passers.   (2 x 3 = 6)
Each 'pawn x officer' capture can create 2 pro-passers. (4 x 2 = 8)

All 6 missing pieces were captured to promote 12 pawns and make 2 passed pawns. So no other captures were made in the retroplay, including the last move by the checking white knight on e6. Additionally, no other promotions were possible.

TW ≠ ♕   There would be 2 more promotions.

W ≠ ♗   Both lowercase W's are on dark squares. A second dark-square bishop would be another promotion.

W = ♖

T = ♗   The final piece of the puzzle is always the easiest.

Black is in double check by the knight on e6 and bishop on f2.

Last move: 1.Nd4-e6++

For the latest article on chess rebuses, see issue 17 of the ChessProblems.ca *Bulletin*. "The Ambiguous Nature of All Things"

Hindsight is 20/20.

Until next year!