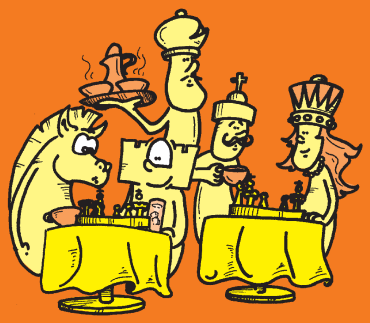


THE PUZZLING SIDE OF CHESS

Jeff Coakley

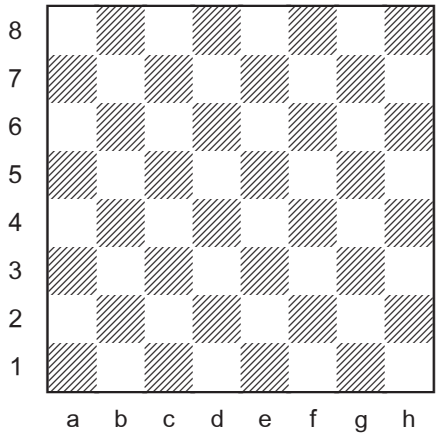
EIGHT OFFICERS

number 15 October 27, 2012

There are two kinds of chess pieces: pawns and officers. Each side begins the game with eight officers: one king, one queen, two rooks, two bishops, and two knights.

This column features a variety of puzzles using the eight white officers. The starting point is an empty board. The task is to arrange the pieces to achieve certain goals.

Unless stated otherwise, the two bishops must be placed on opposite-coloured squares.



Eight Officers 01

Place the eight officers 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 eighth guards the first.

Eight Officers 02

Place the eight officers on the board
so that they have the most possible moves.

Eight Officers 03a

Place the eight officers on the board
so that they attack the most squares.

A piece does not attack the square it stands on. To count as an “attacked square”, the occupied square must be attacked by another piece.

Here’s a hint. The solution is less than 64 squares.

Eight Officers 03b

Place the eight officers on the board
so that all empty squares are attacked
and none of the pieces attack each other.

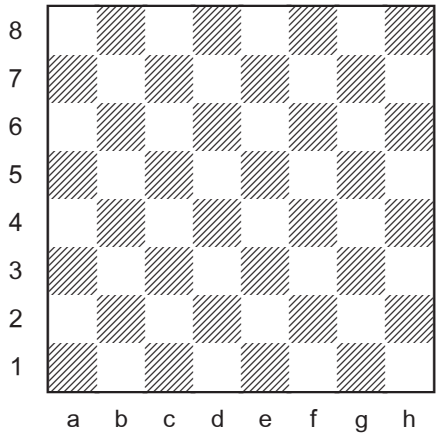
In other words, all occupied squares are unattacked.

The goal of this puzzle is known as *independent domination*. For more information on “board domination”, see column 5 in the archives.

Eight Officers 03c

Place the eight officers on the board,
with both bishops on the same colour,
so that they attack all 64 squares.

This *total domination* task is only possible by placing both bishops on squares of the same colour.



Eight Officers 04a

Place the eight officers on the board
so that they have the fewest moves.

Eight Officers 04b

Place the eight officers on the board
so that they attack the fewest squares.

Eight Officers 04c

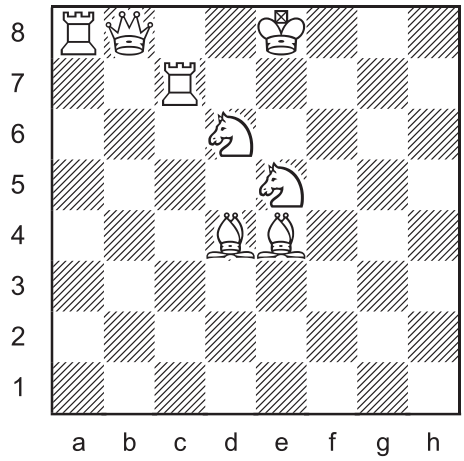
Place the eight officers on the board
so that they attack the fewest squares
and none of the pieces attack each other.

The next problem, which combines ideas from puzzles 02 and 04a, is a bit of wizardry by William Shinkman (1847-1933), the renowned American chess composer.

Born in Bohemia, Shinkman moved to Michigan as a child. He composed over 3500 problems during his lifetime, and acquired the nickname “Wizard of Grand Rapids”. Alain White collected 672 of his problems in a book called *The Golden Argosy* (1929).

Eight Officers 04d

William Shinkman 1883



part A. Make 8 moves so that White has 100 possible moves in the resulting position (the maximum).

part B. Make 8 moves so that White has 10 possible moves in the resulting position (the minimum).

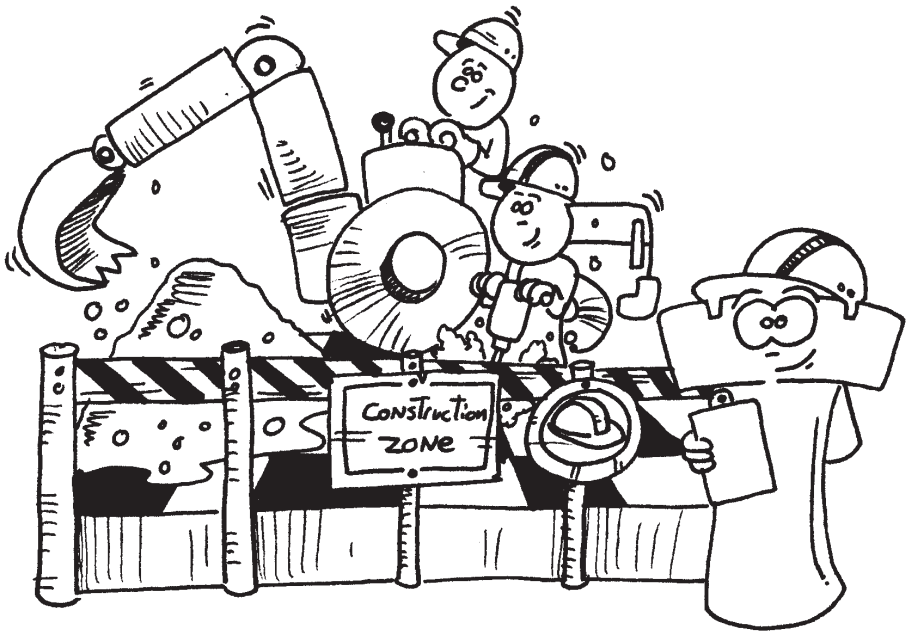
CONSTRUCTION TASKS

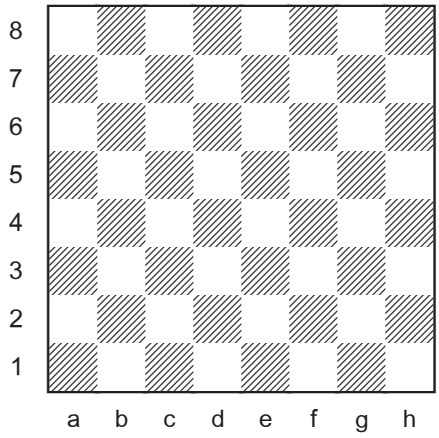
A *construction task* is a puzzle in which the solver must compose a legal position to achieve a certain goal.

The most common goal in a construction task is to maximize the number of mates-in-one. Stipulations are sometimes added concerning which pieces are used, and whether pawn promotions or discovered checks are allowed.

Construction tasks have interested chess problemists for over 150 years. Detailed records are kept of the best achievements.

When constructing a chess position, always wear a hard hat. Also, make sure that your position is legal. To show that a position is legal, find two previous moves (one white, one black) that would lead to the position. The usual difficulty is that Black was in an impossible double check on the previous turn.





Eight Officers 05a
(construction task 01)

Construct a position with the eight white officers and a black king so that White has the most mates in one move. Discovered checks are not allowed. As usual, the two bishops must be placed on opposite-coloured squares (in this and the following puzzle).

Eight Officers 05b
(construction task 02)

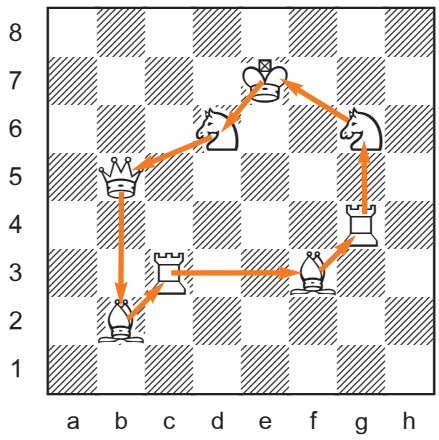
Construct a position with the eight white officers and a black king so that White has the most mates in one move. Discovered checks are allowed.

If a piece that moves to give a *discovered mate* can go to *x* different squares, it counts as *x* mates. A single rook can discover up to fourteen mates.

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.

Eight Officers 01 (defensive loop 01)
J. Coakley 2012
ChessCafe.com

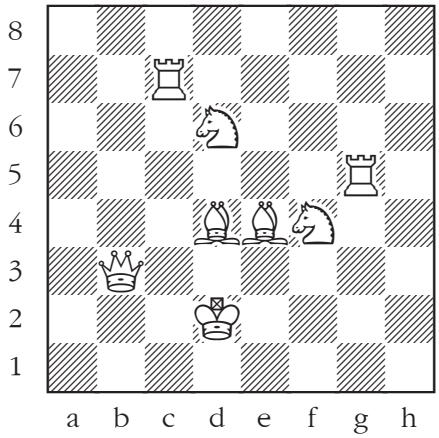


There are lots of other possible solutions to the puzzle. Not all arrangements are as “circular” as this one.

Eight Officers 02 (most moves)

Max Bezzel 1849

Schachzeitung



A cool **100** moves! (K8, Q23, R28, B26, N15)

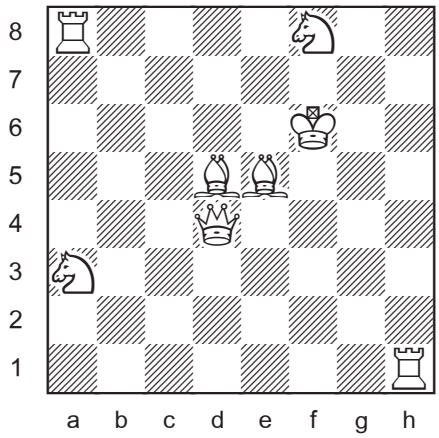
This position by German composer Max Bezzel (1824-1871) was originally published with a black king on a6 as a *construction task* to show a legal position in which the eight white officers had a maximum number of moves. However, it is now commonly given without the black king.

German mathematician Edmund Landau (1877-1938) proved in *Der Schachfreund 1899* that 100 moves is the maximum attainable.

Eight Officers 03a

(most squares attacked)

This position from “the middle of the 19th century” was given by I. A. Horowitz and P. L. Rothenberg in *The Complete Book of Chess* (1969).

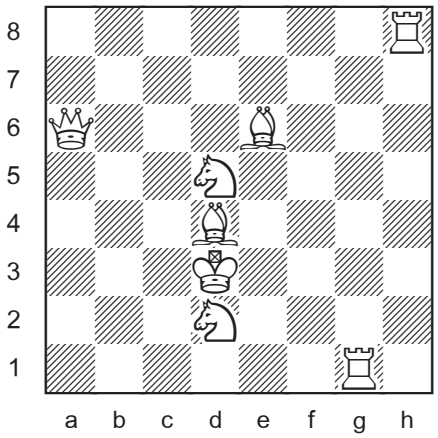


63 squares are attacked. Only e2 is safe.

There are 144 basic patterns for eight officers to attack 63 squares. These patterns can all be reflected (x2) and rotated (x4), so the total number of solutions is 1152.

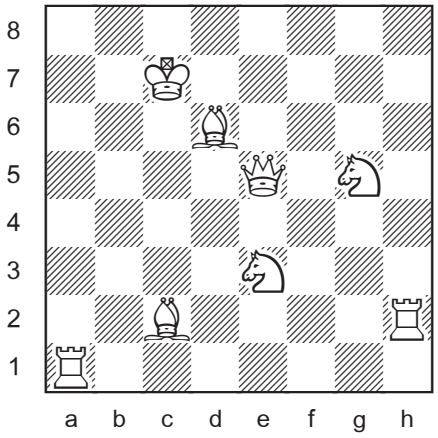
Another very old solution is by German master Josef Kling (1811-1876). The only unattacked square is a6, occupied by the white queen. Like the Max Bezzel diagram from puzzle 02 (also 1849!?), the position was originally published with a black king (on f7 in mate).

Josef Kling 1849
Chess Euclid



British problemist Thomas R. Dawson (1889-1951) published numerous positions with eight officers attacking 63 squares in the Belgian chess magazine *L'Échiquier* in 1932. Here is one of them, with the g8 square unattacked.

T.R. Dawson 1932
L'Échiquier



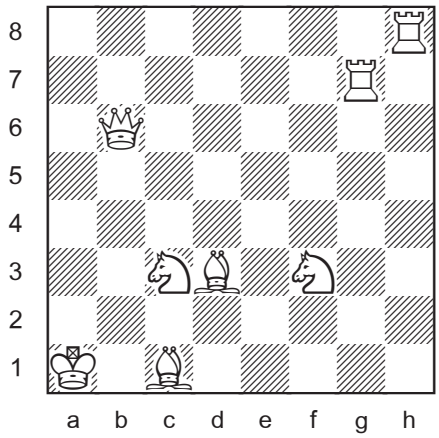
To make a tougher version of this eight officer puzzle, put a black king at g8 on an otherwise empty board. The task then is to place the eight officers so that every square is attacked except the one occupied by the black king. He is stalemated in extreme fashion!

Eight Officers 03b

(independent domination)

Paul Frey 1926

L'Echo de Paris



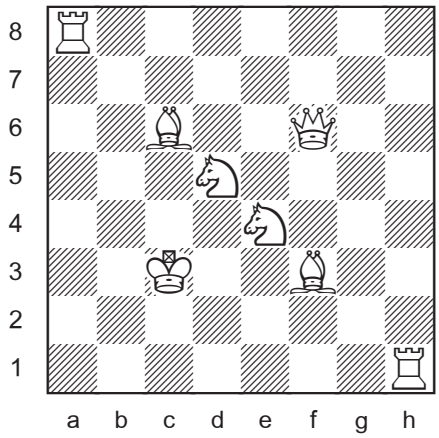
There are probably other solutions for independent domination by the eight white officers. Did you find one?

[January 2020. Belarusian composer Valery Liskovets has computed that there are 22 solutions, all with bishops on opposite colours.]

Eight Officers 03c

(total domination)

Josef Kling 1849



There are three solutions, not counting reflections and rotations. For many years, this quasi-symmetrical pattern was thought to be a unique solution.

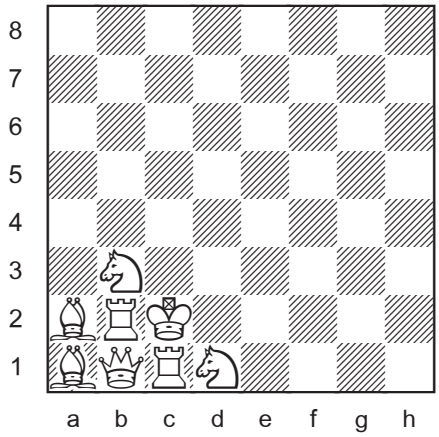
[The original column mistakenly gave this solution as unique, based on that assertion by I.A. Horowitz and P. L. Rothenberg in *The Complete Book of Chess* (1963). See column 178 for the other two solutions.]

Eight Officers 04a

(fewest moves)

William Shinkman 1883

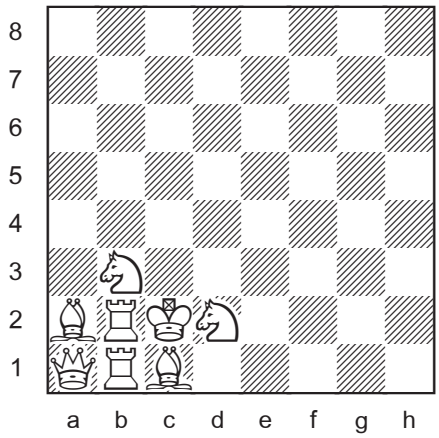
Detroit Free Press



The pieces have **10** moves. (K3 Q0 R0 B0 N7)

[This pattern, credited to "the middle of the 19th century" was given by I. A. Horowitz and P. L. Rothenberg in *The Complete Book of Chess* (1969).]

There are two other arrangements of pieces with 10 possible moves. The position below is also by Shinkman.



10 moves (K3 Q0 R0 B0 N7)

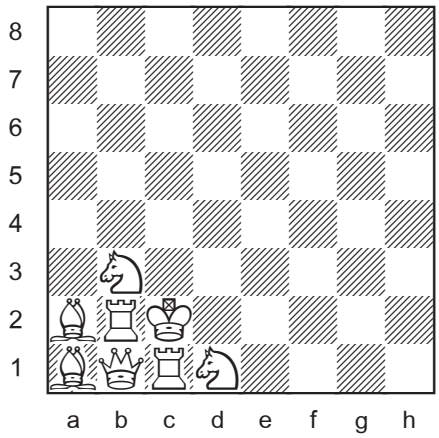
For the third arrangement, switch the queen and rook on b1.

All three patterns can be rotated (x4) and reflected (x2) for a total of twenty-four solutions.

[The original column mistakenly gave the first position as a unique solution.]

Eight Officers 04b

(fewest squares attacked)



16 squares are attacked (8 occupied, 8 vacant)

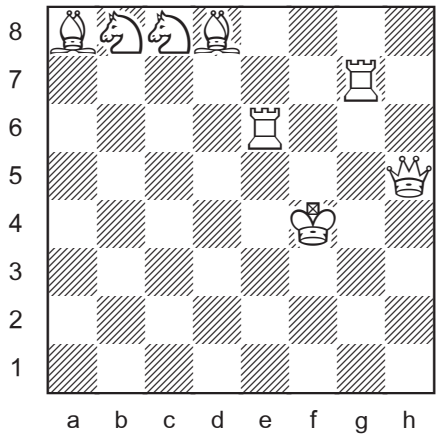
This pattern is the same as the first solution to puzzle 04a. The other two patterns given in 04a are not solutions to 04b. They have 18 attacked squares.

Eight Officers 04c

(fewest attacked squares, no pieces attacked)

George Jelliss 1984

Chessics



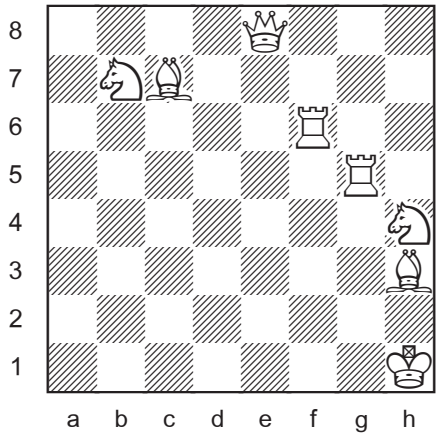
There are **38** attacked squares.
26 squares are unattacked (8 occupied, 18 vacant).

Caisay 4.1, a computer program by Adrian Storisteanu, has verified that 38 is the minimum.

[The following position, with 39 attacked squares, was given as the solution in the original column. It was published in 1968 with a black king on h7, so that Black would stand in stalemate.]

Edgar Fielder 1968

British Chess Magazine



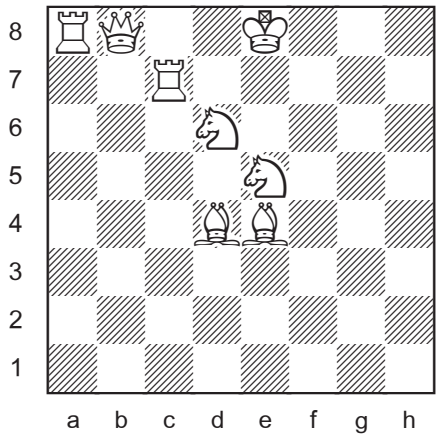
39 attacked squares

Eight Officers 04d

(8 mover)

William Shinkman 1883

Detroit Free Press, January 1



part A 1.Ra4 2.Qb6 3.Rc2 4.Nf5 5.Nd3 6.Kd7 7.Bd5 8.Be5
100 possible moves
Very similar to the pattern for problem 02 (inverted).

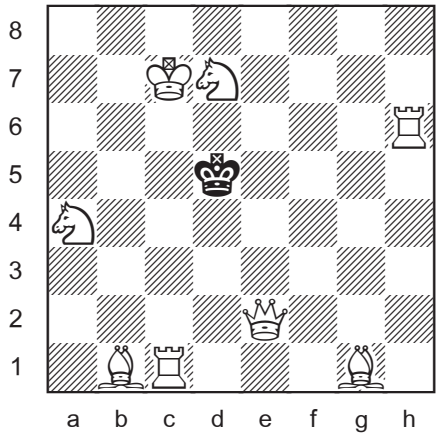
part B 1.Bh7 2.Ng6 3.Bh8 4.Rg7 5.Kf7 6.Qg8 7.Rf8 8.Ne8
10 possible moves
Same pattern as the first solution to problem 04a.

Eight Officers 05a

(construction task 01)

J. Coakley 2006

Winning Chess Puzzles For Kids



White has **22** mates in one (12Q, 4R, 4N, 2B).
The last moves were 1.Bh2-g1+ Kd4-d5.

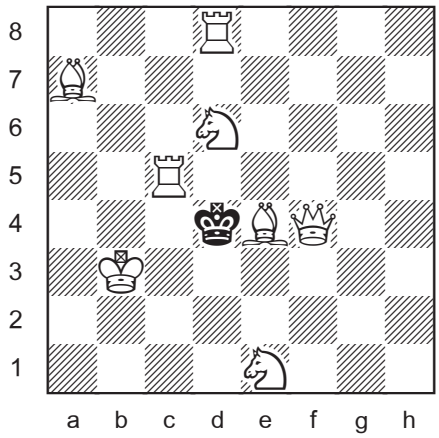
Other solutions are possible, but 22 mates is the maximum. Twelve checks is the limit with a queen.

Eight Officers 05b

(construction task 02)

Adrian Storisteanu 2006

Winning Chess Puzzles For Kids



White has **38** mates in one (14R, 13B, 9N, 2Q).
The last moves were 1.Qf4+ Ke3-d4.

Note that with the white king on d2 (instead of b3), there would be 40 mates (-1Q+3Q). However, the position is illegal.

So 38 is the current record, held by my friend Adrian Storisteanu of Toronto. I've been trying to beat his mark for years. Is anybody else up to the task?

Until next time!