



# THE PUZZLING SIDE OF CHESS

Jeff Coakley

## SECRETS of TRIPLE LOYDS

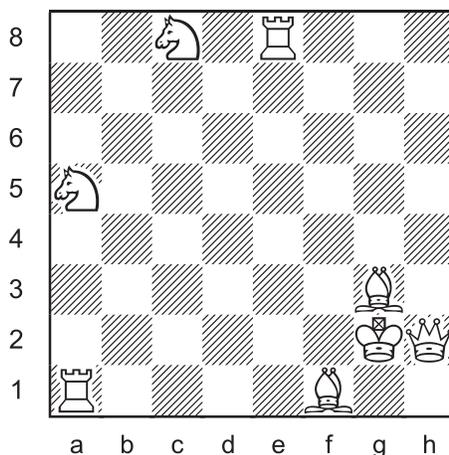
number 17

November 24, 2012

The “triple loyd” is a puzzle that appears on *The Puzzling Side of Chess* every few weeks. It is named after Sam Loyd, the American composer who published the prototype in 1866. This column includes various positions and a discussion on the use of computers in their creation.

A triple loyd is three puzzles in one. In each part, your task is to place the black king on the board to achieve a certain goal.

### Triple Loyd 10



Place the black king on the board so that:

- A. Black is in checkmate.
- B. Black is in stalemate.
- C. White has a mate in 1.

There are two things to note about the above puzzle. First, the eight white officers are all on the board. It may not be obvious, but this is more challenging for the composer than the solver. When making a triple loyd, it is difficult to have a unique solution with so many pieces.

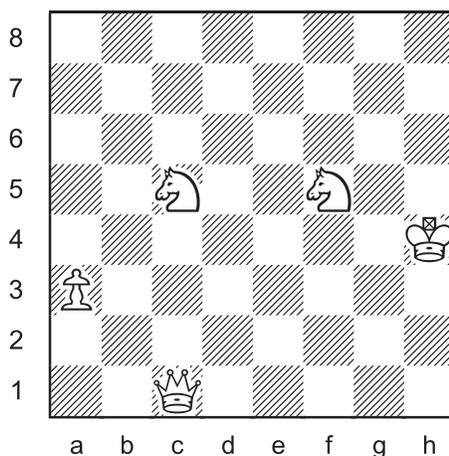
Second, we can be certain that the puzzle is *sound* because it was verified with *Caisay 4.0*, a computer program for checking triple loyds. It was written in 2009 by my friend Adrian Storisteanu of Toronto. Besides being a skilled programmer, Adrian is also an expert problemist. I've learned a great deal about chess puzzles from him.

For triple loyds 1-9 and additional information on Sam Loyd, see columns 1, 5, and 11 in the archives.



Computers are an incredible tool for composers. They ensure accuracy and greatly reduce the time needed for the analysis of positions. Occasionally, they also play a part in the creative process. For example, a computer “idea” is used in the next puzzle.

### Triple Loyd 11



Place the black king on the board so that:

- A. Black is in checkmate.
- B. Black is in stalemate.
- C. White has a mate in 1.

Triple loyd 11 is a revised version of a puzzle that was published in *Scholar's Mate* magazine in 1999. The problem was cooked by the *Caisay* program ten years later, when it found a second solution for part C. The alternate mate-in-one was very clever. So when I repaired the puzzle, I eliminated my intended solution and kept the computer's.

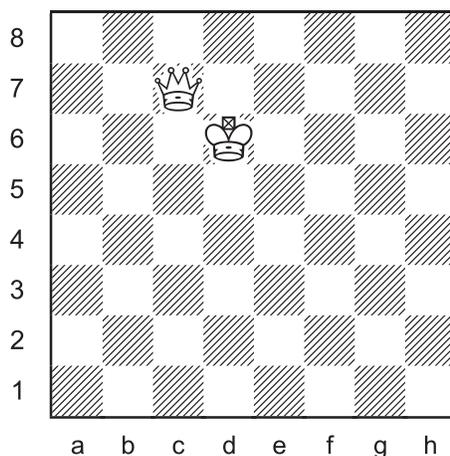
In case you're interested, the original puzzle is included in the solution section.

Like most chess problems, triple loyds can be made with different groups of pieces. One of my objectives has been to determine which minimum groupings are sufficient for making a sound triple loyd.

To be sound, a triple loyd must meet three conditions.

- 1) Each part has a unique solution.
- 2) Parts B and C are not the same square.
- 3) The positions after king placement are legal.

### Triple Loyd 12



Place the black king on the board so that:

- A. Black is in checkmate.
- B. Black is in stalemate.
- C. White has a mate in 1.

The only grouping for a "two piece loyd" is king and queen. It is impossible with king and rook, and with king and pawn.

Deciding which three piece groupings are possible was not so easy. Triple loyds with a white king and the following pieces are included in *Winning Chess Puzzles For Kids*: QR, QB, QN, Qp, RR, RB, RN, Rp.

Most notable of the missing pairs is QQ. Despite a lot of effort, I was unable to make a sound triple loyd with king and two queens. The closest I came were positions in which parts B and C are the same square. For example, Ke1 Qa1 Qe4, with solutions A. Kc1#, B. Kb3=, C. Kb3 (Qea4#). However, I was not convinced that a two queen loyd was impossible.

Eventually, *Caisay 4.0* provided the definite answer. Adrian Storisteanu was able to modify his program so that it could *generate* a list of all possible triple loyds using a specified piece grouping. It showed that the following triple loyds are impossible: (K plus) QQ, BB, BN, NN, Bp, Np, pp.

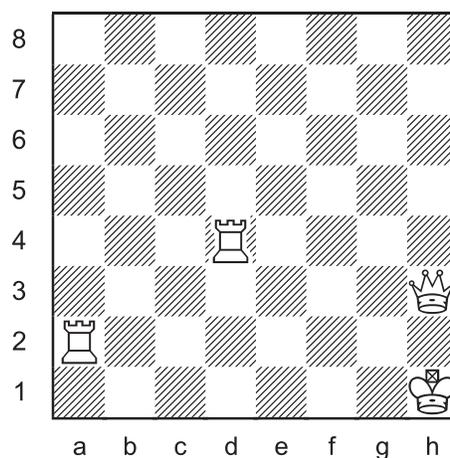
We then used the program to investigate some four piece positions, and discovered that (K plus) QQQ, NNN, Npp, and ppp are also impossible.

The implication of generating lists of all triple loyds is significant. We were not only proving that certain piece groupings are impossible. We were “finding” new and original puzzles.

Some of the lists were very long. In the QB file, I counted fifty-two basic patterns, which included the prototype problem by Sam Loyd. But the majority of the positions were quite *boring*. Other files, such as QRB, were *too large* to examine in detail. That would be the case for most lists with four or more pieces, so we didn't bother to generate them all.

One short list that interested me was QRR, because I had never succeeded in making a triple loyd with that piece grouping.

### Triple Loyd 13



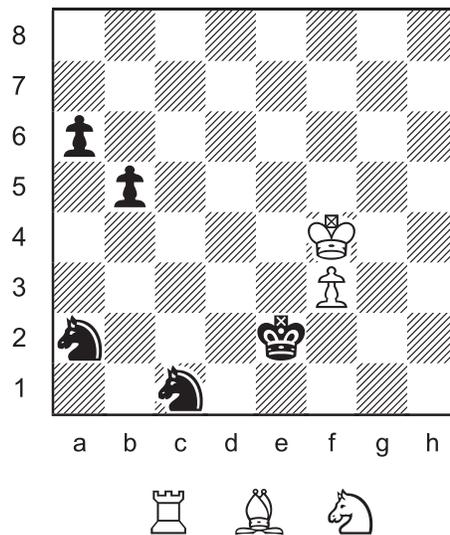
Place the black king on the board so that:

- A. Black is in checkmate.
- B. Black is in stalemate.
- C. White has a mate in 1.

The final two puzzles in this column are “inverted loyds”. In these positions, three white pieces (RBN) are added to the board so that White has a mate in one. There is no program for checking them, so it’s just like the old days before computers. The composer must rely on human analysis.

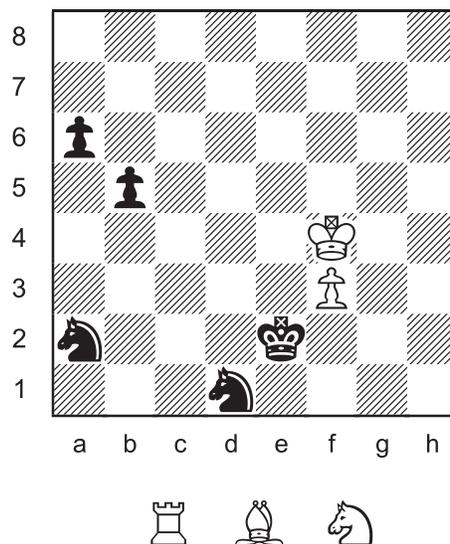
Inverted loyd 02b is a revision of a problem from column 11. Thanks to the two readers who pointed out dual solutions. They cooked me well. I hope to fare better this time.

### Inverted Loyd 02b (revised)



Place a white rook, bishop, and knight on the board so that White has a mate in 1.

### Inverted Loyd 03



Place a white rook, bishop, and knight on the board so that White has a mate in 1.

Okay, friends, the kitchen is open here at the chess cafe. Can we cook another puzzle?

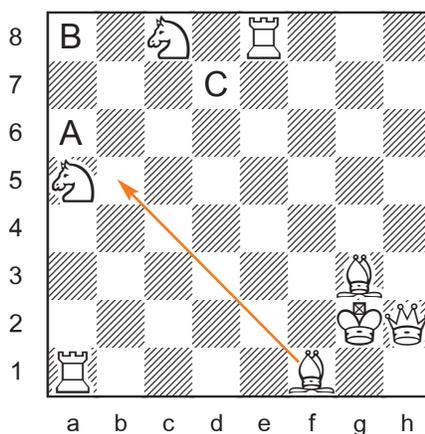


## SOLUTIONS

All puzzles except triple loyd 13 are by J. Coakley. Triple loyds 11 and 12 are from *Winning Chess Puzzles For Kids* (2006). Triple loyd 10 and inverted loyds 2b and 3 are *ChessCafe.com* originals (2012).

*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.

### Triple Loyd 10

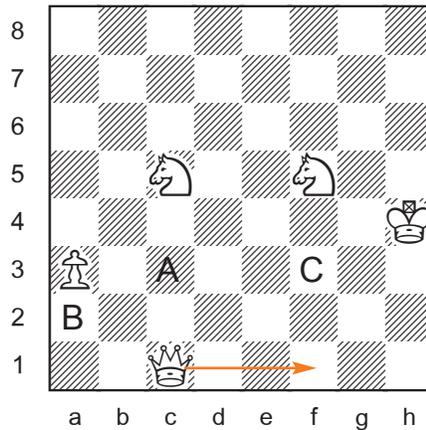


- A. Ka6#
- B. Ka8=
- C. Kd7 (Bb5#)

The white queen hides out on the h-file.

## Triple Loyd 11

*Winning Chess Puzzles For Kids (2nd edition)*



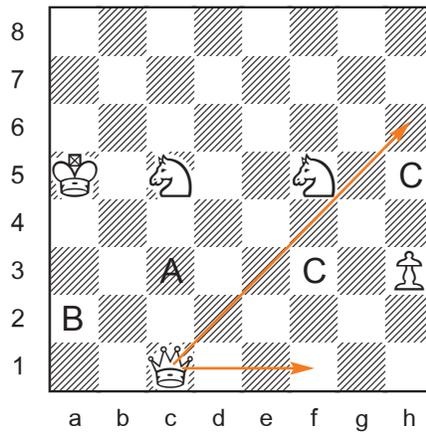
- A. Kc3#
- B. Ka2=
- C. Kf3 (Qf1#)

Classic cooperation by queen and knight.

## Triple Loyd 11x (unrevised)

*Scholar's Mate 47 (1999)*

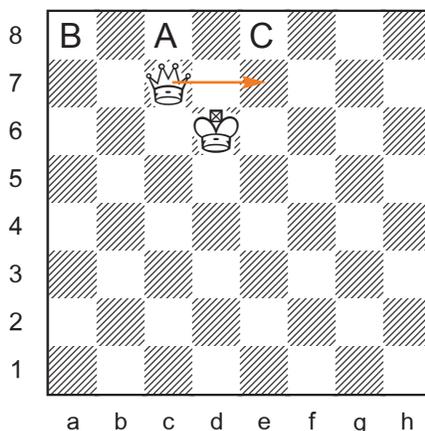
*Winning Chess Puzzles For Kids (2006)*



- A. Kc3#
- B. Ka2=
- C. Kh5 (Qh6#) or Kf3 (Qf1#)

The puzzle is *unsound* because of the dual solutions for part C. The “accidental” mate in one by Kf3 (Qf1#) is better than the intended Kh5 (Qh6#). It mirrors the mate of part A, and makes the problem more thematic.

### Triple Loyd 12



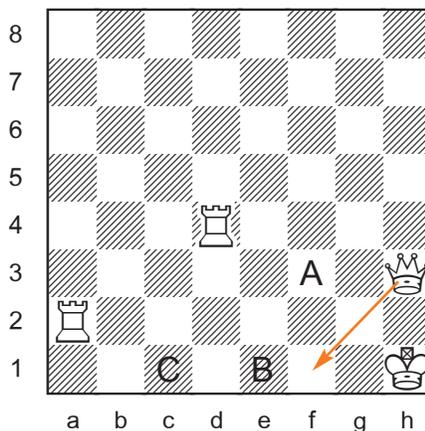
- A. Kc8#
- B. Ka8=
- C. Ke8 (Qe7#)

It doesn't get more basic than this.

### Triple Loyd 13

J. Coakley and A. Storisteanu 2010  
with assistance of Caisay 4.0

*Winning Chess Puzzles For Kids Volume 2*

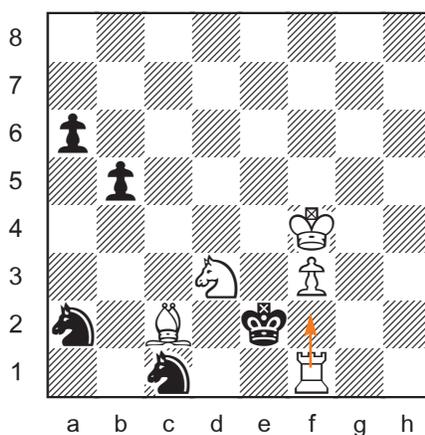


- A. Kf3#
- B. Ke1=
- C. Kc1 (Qf1#)

Publishing a problem that was found by searching a “database” of positions raises questions of authorship. This issue has been discussed in the chess world for many years, especially in the area of endgame studies, where positions from five and six piece “tablebases” are sometimes used. The debate continues.

Here's how I give credit. Triple loyd 13 exists because of two humans, Adrian and me. Caisay was the *tool* that made it possible.

### Inverted Loyd 02b (revised)



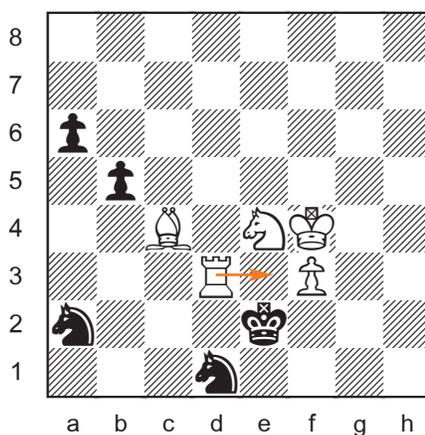
Rf1, Bc2, Nd3 were added.

1.Rf2#

The main change from the original puzzle is that the board was flipped and the pawn between the kings is now white. The pawns on a6 and b5 are not necessary, but are included for *twining* purposes with inverted loyd 03.

For inverted loyd 01, see column 5 in the archives.

### Inverted Loyd 03



Rd3, Bc4, Ne4 were added.

1.Re3#

The power of double check.

Until next time!

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