



# THE PUZZLING SIDE OF CHESS

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## **CYCLOTRONIC OVERDRIVE: TOPPING OUT**

number 95

February 13, 2016

This column concludes a set of cyclotrons started ten months ago. Keep your eye on the board. These puzzles may make you dizzy.

A *cyclotron* is a three-way switcheroo. Instead of switching two pieces, we switch three. In case you're new to this type of puzzle, here are the rules.

### **CYCLOTRONS**

Switch the position of three pieces so that Black is in checkmate. No actual chess moves are made. The pieces simply swap squares.

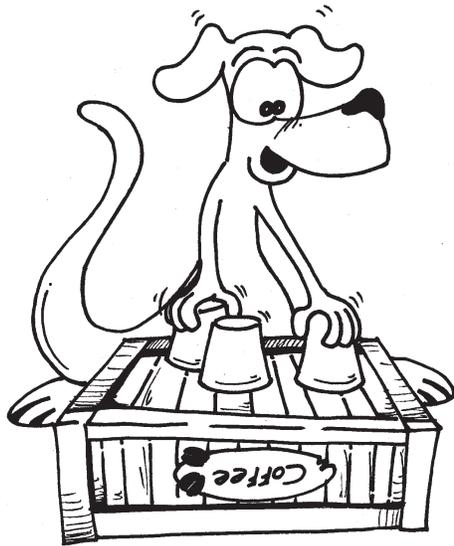
The pieces trade places in a "cycle". Piece A goes to square B, piece B goes to square C, and piece C goes to square A.

Any three pieces can trade places. Colours do not matter. The cycled pieces can be all white, all black, or a mix of both. Cycling the black king is a common trick.

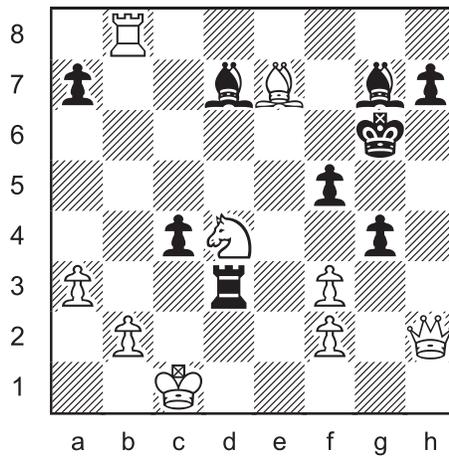
The position after the cycle must be legal. This rule implies several things.

- a) A pawn cannot be on the 1st or 8th rank.
- b) Both kings cannot be in check.
- c) There must be a way to reach the position with a legal white move. Impossible checks, especially double checks, are a frequent "violation".
- d) In some cases, retrograde analysis is required to decide if the position after a cycle is legal.

For more information on cyclotrons, see column 55.

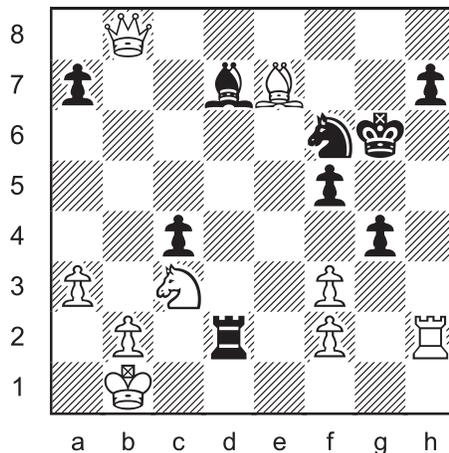


### Cyclotron 30



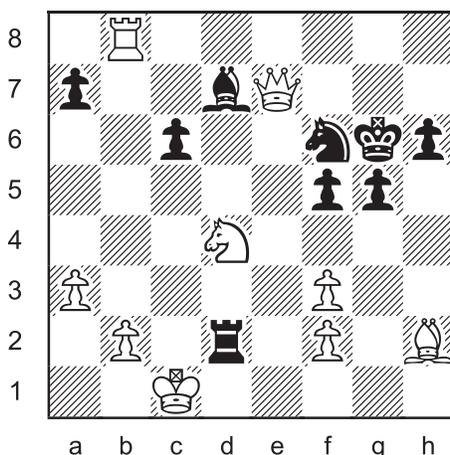
Cycle three pieces so that  
Black is in checkmate.

### Cyclotron 31



Cycle three pieces so that  
Black is in checkmate.

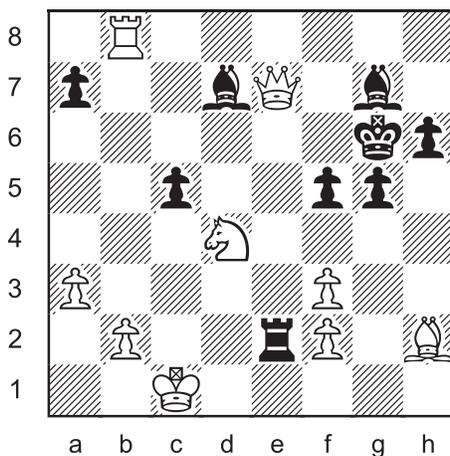
### Cyclotron 32



Cycle three pieces so that  
Black is in checkmate.

For more cyclotrons with the same “zero position”, see columns 89 (Gearing Up) and 92 (Spinning On). They were added to the archives this week.

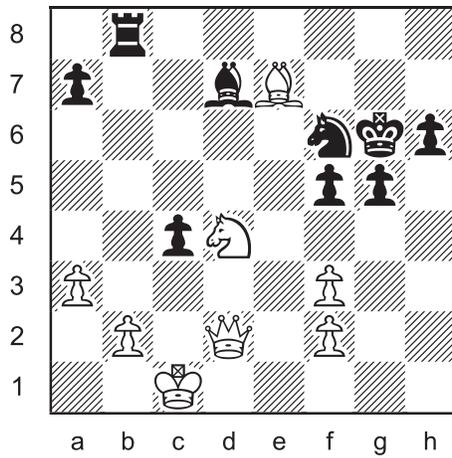
### Cyclotron 33



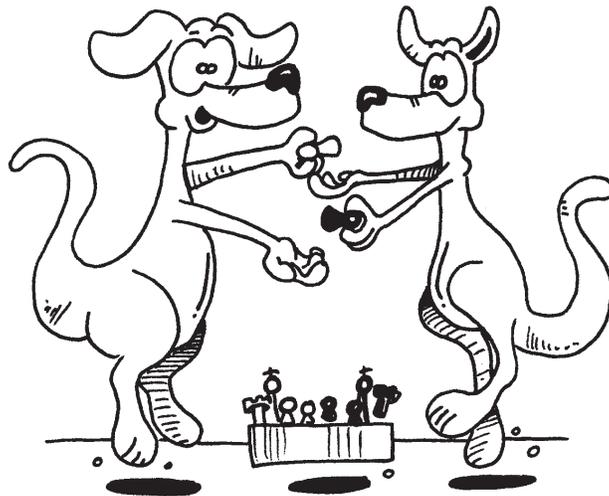
Cycle three pieces so that  
Black is in checkmate.

A cyclotron is an *extended switcheroo*. A cyclotron cycles three pieces. A switcheroo switches two pieces. For everything you ever wanted to know about switcheroos, see column 4.

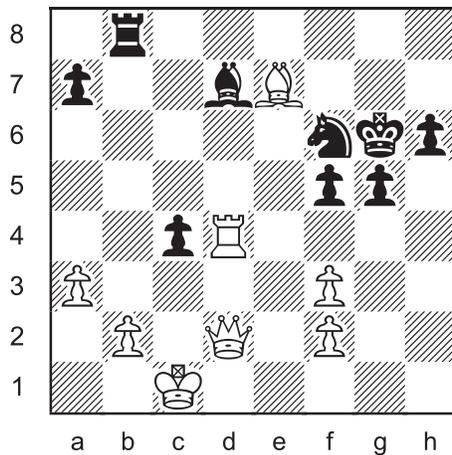
### Cyclotron 34



Cycle three pieces so that  
Black is in checkmate.

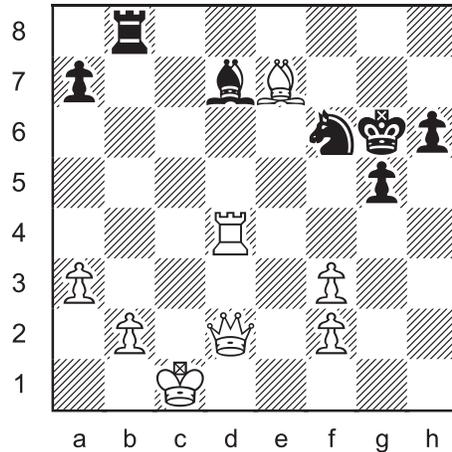


### Cyclotron 35



Cycle three pieces so that  
Black is in checkmate.

## Cyclotron 36



Cycle three pieces so that  
Black is in checkmate.

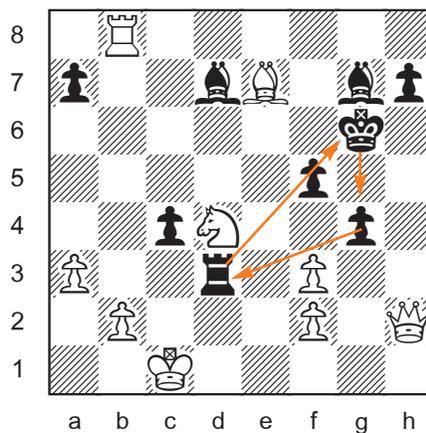
This puzzle is the final spin of the Cyclotronic Overdrive. Hope you enjoyed the ride!

## **SOLUTIONS**

All cyclotrons by J. Coakley. *Puzzling Side of Chess* (2016).

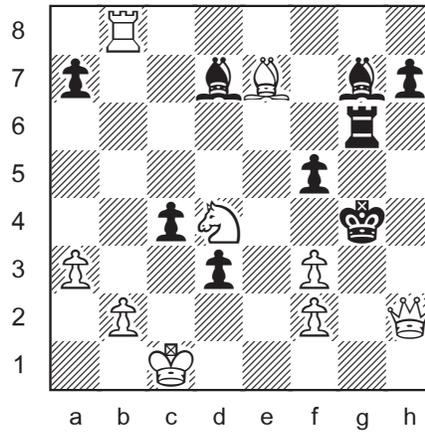
*PDF hyperlinks.* You can advance to the solution of any puzzle by clicking on the underlined title above the diagram. To return to the puzzle, click on the title above the solution diagram.

## Cyclotron 30

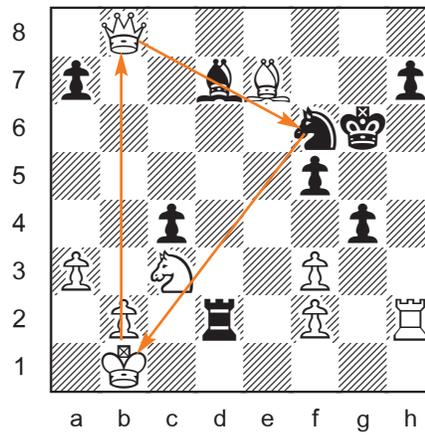


Rd3→g6 K<sub>g</sub>6→g4 g4→d3

The order in which the pieces are cycled is not important. The resulting position will still be the same. See diagram below.

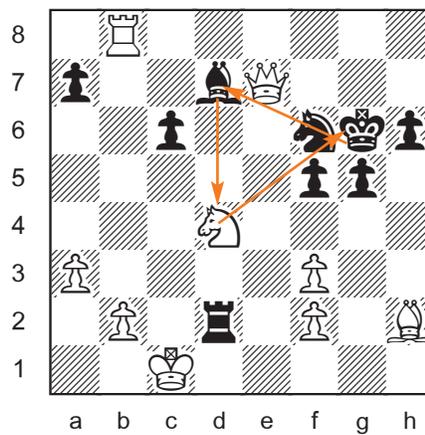


### Cyclotron 31



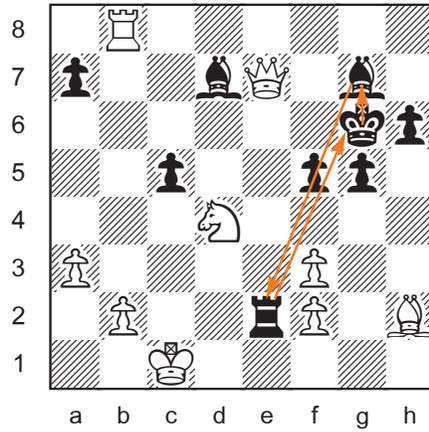
Kb1→b8 Qb8→f6 Nf6→b1

### Cyclotron 32



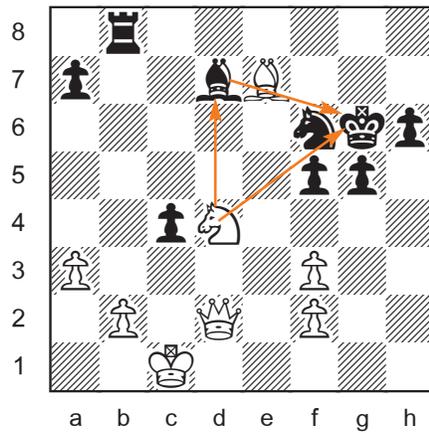
Nd4→g6 Kg6→d7 Bd7→d4

### Cyclotron 33



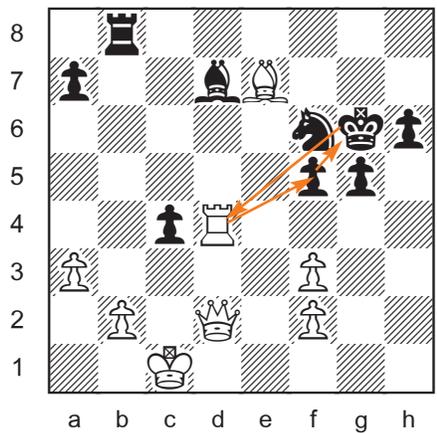
Re2→g6 Kg6→g7 Bg7→e2

### Cyclotron 34



Nd4→d7 Bd7→g6 Kg6→d4

### Cyclotron 35



Rd4→f5 f5→g6 Kg6→d4

