

# THE PUZZLING SIDE OF CHESS

Jeff Coakley

## CYCLOTRONIC LIFE Around the World in 1123 Days

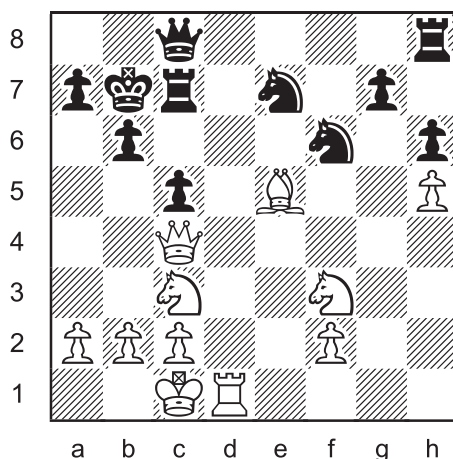
number 183

October 31, 2019

This column concludes our series on *Cyclotron Lives*. The side theme is one of history's strangest stories, the first circumnavigation of the globe and the last voyage of Ferdinand Magellan.



### Cyclotron 79



Cycle three pieces so that Black is in checkmate.  
(See rules on next page.)

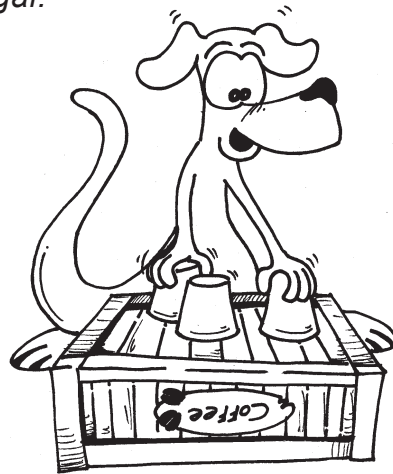
## CYCLOTRONS

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.

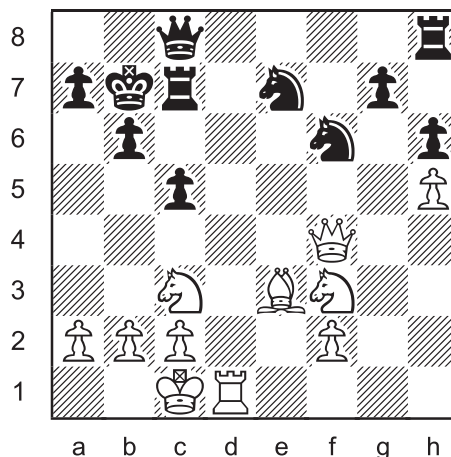
The position after the cycle must be legal. This rule implies several things.

- a) Pawns 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.



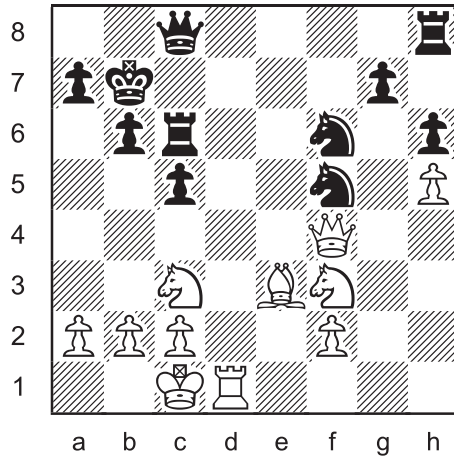
Five ships set sail from Spain in August 1519 under the command of Ferdinand Magellan. On board for the journey around the world were 270 brave souls. Only one ship completed the mission, returning three years later with a crew of 18, captained by Juan Sebastián Elcano.

## Cyclotron 80



Cycle three pieces so that Black is in checkmate.

## Cyclotron 81



Cycle three pieces so that Black is in checkmate.

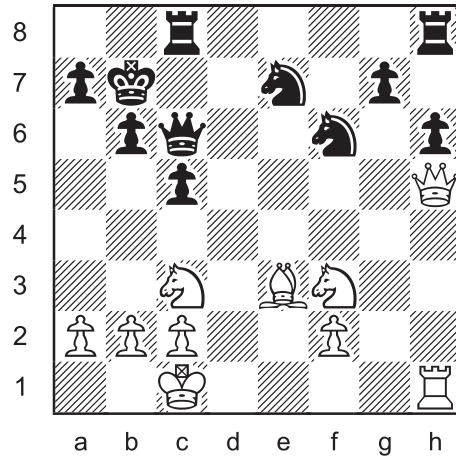


*Magellan*

Ferdinand Magellan (1480-1521) was a Portuguese explorer who discovered a passage between the Atlantic and Pacific oceans at the southern tip of South America. The *Strait of Magellan* is a 570 km searoute between mainland Chile and the island Tierra del Fuego.

Magellan is often credited with being the first person to circumnavigate the world. However, like Amelia Earhart, he never actually made the full circle. His ship did, but not the man.

## Cyclotron 82



Cycle three pieces so that Black is in checkmate.



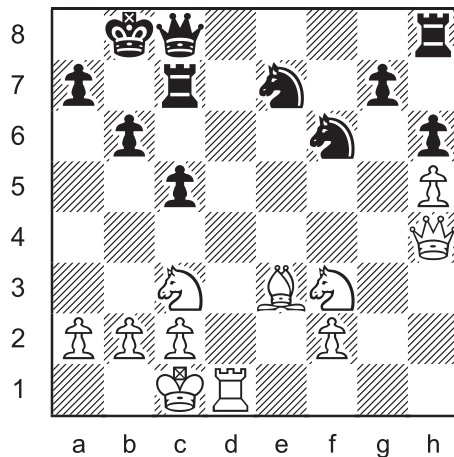
*Victoria*

Five hundred years ago, in 1519, the king of Spain commissioned Ferdinand Magellan to find a westward route to Indonesia for the purpose of obtaining valuable spices. At the time, the eastern route around Africa was controlled by Portugal, an enemy of Spain.

The voyage was fraught with problems. Severe storms, scurvy, starvation, piracy, multiple mutinies. Murders, massacres, executions. Even a sex trial.

During the first winter, one of Magellan's five ships was lost in a storm. Several months later, another ship deserted the fleet and returned to Spain. But three ships succeeded in crossing the Pacific, reaching the Philippines in March 1521.

## Cyclotron 83



Cycle three pieces so that Black is in checkmate.

The objective of the voyage to Asia, to trade for spices, was purely commercial. But in the spirit of the times, Magellan was dead set on converting the Filipinos to Christianity. When the natives of Mactan Island resisted the new faith, he attempted to persuade them with brute force, confronting them with threats and 60 armed men. In the bloody battle that ensued, Magellan was shot with poison arrows and killed by a bamboo spear. His greatly outnumbered troops were soundly defeated.

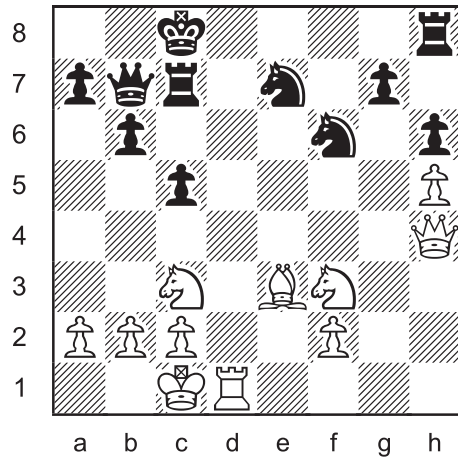


After Magellan's death, there were not enough crewmen for the three remaining ships, so one was abandoned and burned. Two ships continued the journey westward along the shores of southeast Asia. The "fleet" was now under the command of Joao Lopez Carvalho, with Juan Sebastián Elcano serving as captain on the *Victoria*.

In December 1521, the *Victoria* set sail for home, laden with 26 tons of cloves and cinnamon. However, the other ship was damaged and remained in Indonesia for repairs. When it did eventually get underway, it was captured by the Portuguese and later wrecked in a storm.

Trouble followed the *Victoria* as it rounded the Cape of Good Hope and headed north along western Africa. Twenty men died of starvation. Thirteen more were taken prisoner during a port stop.

## Cyclotron 84



Cycle three pieces so that  
Black is in checkmate.



*Elcano*

Juan Sebastián Elcano (1486-1526), a naval officer from the Basque country of Spain, was captain of the first ship to circumnavigate the world. He took command of the *Victoria* after the death of Ferdinand Magellan halfway through the 44,000 mile voyage. But it was no joyride for Elcano. During the first year of the journey, he was convicted of mutiny and spent several months in chains at hard labour.

On a subsequent voyage to Indonesia, Elcano died of malnutrition in the Pacific Ocean. Another casualty of the cyclotronic life.

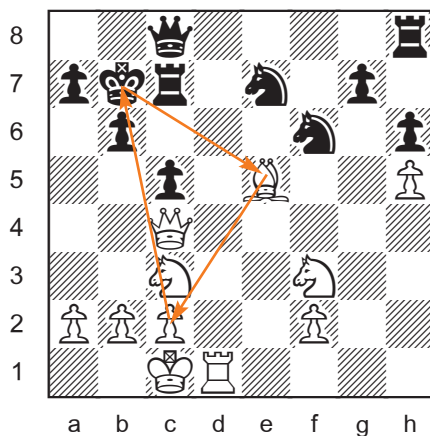
## SOLUTIONS

All cyclotrons by J. Coakley. *Puzzling Side of Chess* (2019).  
Computer checked by Caisay 4.1 (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.** Other columns with similar problems can be found in the archives (55, 89, 92, 95, 119, 126, 128, 130, 132, 177, 178, 180). For more information on ordinary switcheroos, see column 4.

### Cyclotron 79

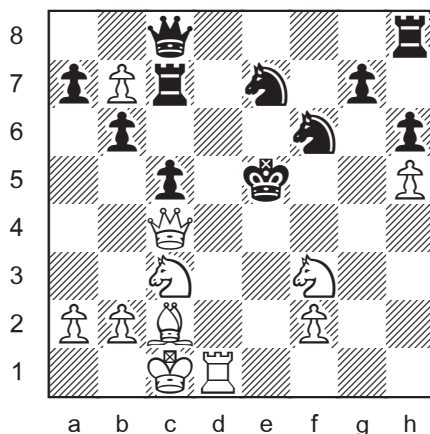


$Kb7 \rightarrow e5$   $Be5 \rightarrow c2$   $c2 \rightarrow b7$

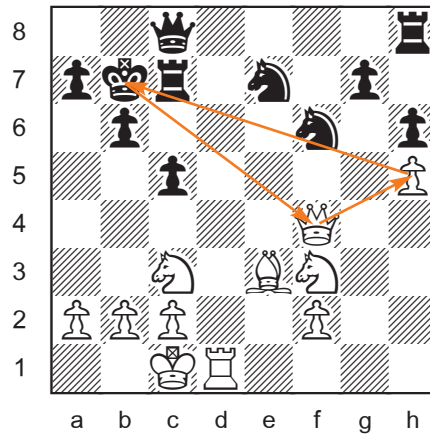
Isosceles right triangle.

The cycle  $b2 \rightarrow Kb7$   $Kb7 \rightarrow c3$   $Nc3 \rightarrow b2$  is an illegal double check.

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

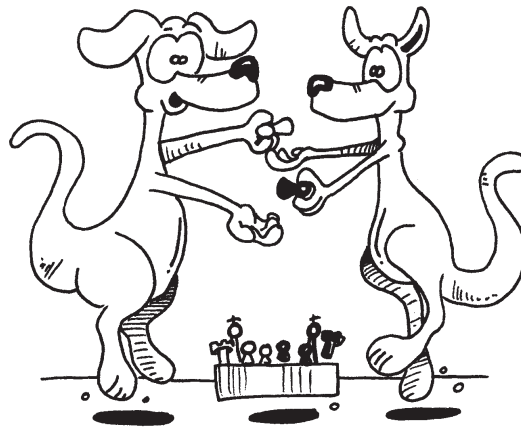


## Cyclotron 80

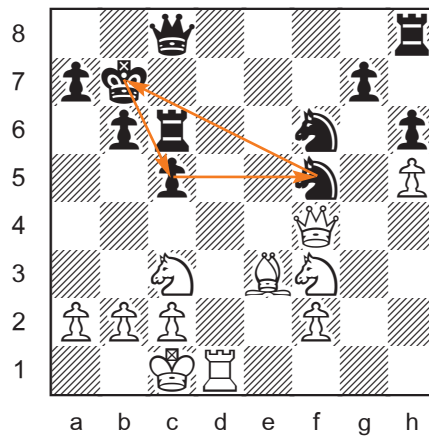


$Kb7 \rightarrow f4$   $Qf4 \rightarrow h5$   $h5 \rightarrow b7$

The cycled queen covers f3, f5, g4.



## Cyclotron 81



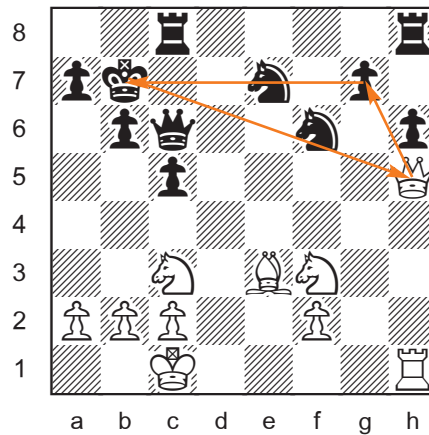
$Kb7 \rightarrow c5$   $c5 \rightarrow f5$   $Nf5 \rightarrow b7$

The black knight abandons the defence.

The cycle  $Kb7 \rightarrow c5$   $c5 \rightarrow Nf3$   $Nf3 \rightarrow b7$  is an illegal double check.



## Cyclotron 82



Kb7→h5 Qh5→g7 g7→b7

“Sci-fi mate” (side file).

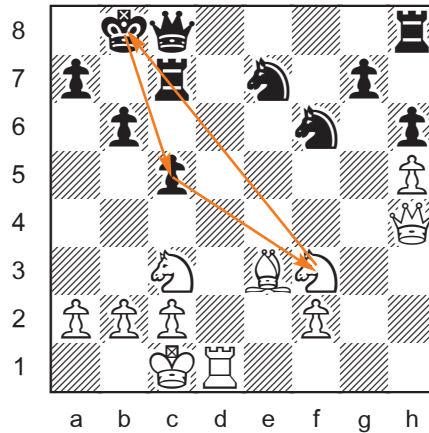
The cycle Kb7→c1 Kc1→c3 Sc3→b7 is an illegal double check.  
Cycles involving Kb7→h6 are all illegal double checks.



*When maps still had missing pieces.*

The Pacific Ocean was given its name by Ferdinand Magellan. After a tumultuous voyage across the Atlantic and around the southern tip of South America, he was very pleased to reach the “peaceful sea”.

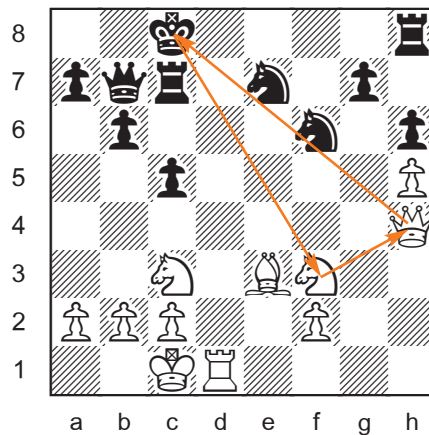
### Cyclotron 83



Kb8→c5 c5→f3 Nf3→b8

The white knight takes control of c6.

### Cyclotron 84



Kc8→f3 Nf3→h4 Qh4→c8

Checker and checkee get cycled.



Until the next time around!

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