

KING'S MOVES IN THE PERIODIC TABLE

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Playing with the names and symbols of the chemical elements has been a continuing theme in *Word Ways*. The first issue of *Word Ways* (back in February 1968) carried an item, *An Elemental Problem*, which quizzed readers with transposals of the names of 20 elements. Over the years, other articles have explored further transposals, transadditions and transdeletions, and so on. My articles of February 2002 and May 2006 investigated the existence of words and names spelled out when the symbols for the chemical elements were spelled out in one continuous stream of letters.

Most recently (November 2014), Tristan Miller's excellent article *Elemental Words Revisited* explored many other ways of constructing words from different groupings of the elements' symbols.

Even before Tristan's article appeared, I had started exploring the possibility of forming words by moving around the periodic table in "king's move" fashion. In chess, a king can move one square in any direction - horizontally, vertically, or diagonally. I was rather pleased that Tristan's article didn't explore this concept, as it would have devalued much of the work I had already done. However, Tristan's article did inspire me to complete my research, and my findings are offered in the remainder of this article.

First off, let's nail the symbols which appear in the periodic table. I have used the symbols and the version of the periodic table exactly as it appeared in Tristan Miller's November 2014 article (page 311, volume 47, number 4). Alternatively, you can access the same periodic table and symbols at this webpage:

en.wikipedia.org/wiki/Transuranium_element#mediaviewer/File:Periodic_Table_Radioactivity.svg

I have managed to find 125 words and names which can be traced out with king's moves in the periodic table. I have sorted them into some fairly obvious groupings:

- a single move left
- a single move right
- a single move down
- a single move down diagonally left
- a single move down diagonally to the right
- a single move up
- a single move up diagonally to the left
- a single move up diagonally to the right
- multiple moves in various directions

I have allowed repeated use of some symbols, just as a king chess piece can return to a square previously occupied. Obviously, this has to involve one or more intermediate moves (for example, the eight-symbol SPONSONS uses only four symbols, with each of S, P, O and N being visited twice).

In the lists below, I show each word found, followed by a source dictionary (or, occasionally, a website), and then the atomic numbers and symbols used in spelling out the word.

Move left

- bacs flat-bottomed French boats | OED | 56-Ba | 55-Cs |
- cofe a bargain, also a pedlar | OED | 27-Co | 26-Fe |
- nef a 16th century clock in the form of a ship | W3 | 10-Ne | 9-F |

path a track | W3 | 91-Pa | 90-Th |
psi the 23rd letter of the Greek alphabet | W3 | 15-P | 14-Si |
rew a dialect variant of 'rue', to repent | W3 | 75-Re | 74-W |
seas bodies of water | W3 | 34-Se | 33-As |
sial an outer portion of the earth | W3 | 14-Si | 13-Al |

Move right

asse a fox of South Africa | W3 | 33-As | 34-Se |
Bala a town in north Wales | W3 | 56-Ba | 57-La |
gage a variant of 'gauge', a measuring instrument | W3 | 31-Ga | 32-Ge | this word was in the February 2002 article |
hoer someone or something that hoes | W3 | 67-Ho | 68-Er | this word was in the February 2002 article |
lace a fine fabric | W3 | 57-La | 58-Ce | this word was in the February 2002 article |
poat a 15th century spelling of 'pot' | OED | 84-Po | 85-At |
reos languages | CED, 2014 | 75-Re | 76-Os |
sip to drink in small quantities | W3 | 14-Si | 15-P | this word was in the February 2002 article |
sips drinks in small quantities | W3 | 14-Si | 15-P | 16-S | this word was in the February 2002 article |
Tiv a peasant people of Nigeria | W3 | 22-Ti | 23-V |

Move down vertically

Agau a peasant people of Ethiopia | W3 | 47-Ag | 79-Au |
alga a plant | W3 | 13-Al | 31-Ga |
bal a mine | W3 | 5-B | 13-Al |
gain an increase or addition | W3 | 31-Ga | 49-In |
hoes agricultural implements | W3 | 67-Ho | 99-Es |
mow to cut down, as a grain or grass | W3 | 42-Mo | 74-W |
near within a short distance | W3 | 10-Ne | 18-Ar |
sete a number of men posted to shoot game | OED | 34-Se | 52-Te |
sige an obsolete spelling of 'siege', the action of cutting off outside communication with a view to taking a town or castle | OED | 14-Si | 32-Ge |

Move down diagonally to the left

Bena an African people from north of Lake Nyasa | W3 | 4-Be | 11-Na |
cal the mineral wolframite | W3 | 6-C | 13-Al |
carb a carbohydrate or carburettor | W3 | 20-Ca | 37-Rb |
eres cultivates | W3 | 68-Er | 99-Es |
gein a brown precipitate obtained by boiling mould or decayed vegetable matter with alkalis | OED | 32-Ge | 49-In |
Lara surname of a Trinidadian cricket, Brian Lara | CED, 2014 | 57-La | 88-Ra |
Mota an island in the South Pacific, part of the republic of Vanuatu | OED | 42-Mo | 73-Ta |
rhos examples of the 17th letter of the Greek alphabet | W3 | 45-Rh | 76-Os |
rure an obsolete word for downfall, ruin | OED | 44-Ru | 75-Re |
tarf the turn of a cap | OED | 73-Ta | 104-Rf |

Move down diagonally to the right

cay a small low island | W3 | 20-Ca | 39-Y |
dyes coloring matters | W3 | 66-Dy | 99-Es |
far at a considerable distance | W3 | 9-F | 18-Ar |
hene poor, humble, lowly | OED | 2-He | 10-Ne |

lath a thin narrow strip of wood | W3 | 57-La | 90-Th |
 more of a larger quantity | W3 | 42-Mo | 75-Re |
 niag an 18th century variant of 'nag', to find fault with | OED | 28-Ni | 47-Ag |
 rehs mixtures of sodium salts found on the ground in parts of India | W3 | 75-Re | 108-Hs |
 teat a nipple | W3 | 52-Te | 85-At |

Move up vertically

alb a vestment worn by priests | W3 | 13-Al | 5-B |
 arne an alder tree | OED | 18-Ar | 10-Ne |
 gaal a 17th-18th century spelling of 'gyle', a quantity of beer brewed | OED | 31-Ga | 13-Al |
 inga a tropical shrub | W3 | 49-In | 31-Ga |
 pote a thrust or kick | W3 | 84-Po | 52-Te |
 rufe a brownish red color | OED | 44-Ru | 26-Fe |
 sic intentionally so written | W3 | 14-Si | 6-C |
 tese a variant of 'teise', an old measure of 6 feet | OED | 52-Te | 34-Se |

Move up diagonally to the left

caña a spirit resembling rum | OED | 20-Ca | 11-Na |
 pace rapidity | W3 | 91-Pa | 58-Ce |
 remo a variant of 'rimu', a tree of New Zealand | OED | 75-Re | 42-Mo |
 teas shrubs, and the drinks made from them | W3 | 52-Te | 33-As |

Move up diagonally to the right

ass animal smaller than a horse | W3 | 33-As | 16-S |
 bay a body of water, a sea inlet | W3 | 56-Ba | 39-Y |
 bite to seize with teeth | W3 | 83-Bi | 52-Te |
 inge a variant spelling of 'ing', a meadow | OED | 49-In | 32-Ge |
 nabe a neighborhood theater | W3 | 11-Na | 4-Be |
 pand a bedstead drapery | W3 | 91-Pa | 60-Nd |

Three symbols

asps venomous snakes | W3 | 33-As | 15-P | 16-S |
 assete a variant spelling of 'aseth', satisfaction or compensation | OED | 33-As | 34-Se | 52-Te |
 balge a yellow color | W3 | 5-B | 13-Al | 32-Ge |
 brise a ballet movement | W3 | 35-Br | 53-I | 34-Se |
 brite a variant spelling of 'brit', to crush or grind | OED | 35-Br | 53-I | 52-Te |
 clon a 19th century variant spelling of 'clone', a population of genetically identical plants | OED | 17-Cl | 8-O | 7-N |
 clop a sound made by a hoof | W3 | 17-Cl | 8-O | 15-P |
 farne a 15th century past tense and past participle of the verb 'fare', to journey or travel | OED | 9-F | 18-Ar | 10-Ne |
 fop a dandy | W3 | 9-F | 8-O | 15-P |
 geasse a 15th century variant spelling of 'guess', a conjecture | OED | 32-Ge | 33-As | 34-Se |
 mowre a 15th century variant spelling of 'mure', to wall in or surround with walls | OED | 42-Mo | 74-W | 75-Re |
 nefn ornamental table utensils | W3 | 10-Ne | 9-F | 16-S |
 nos denials | W3 | 7-N | 8-O | 16-S |
 ons positions in cricket | W3 | 8-O | 7-N | 16-S |
 opas grandfathers | OED | 8-O | 15-Pa | 33-S |
 ops military operations | OED | 8-O | 15-P | 16-S |
 osse a prophetic utterance | W3 | 8-O | 16-S | 34-Se |

pass proceed | W3 | 15-P | 33-As | 16-S |
 paste gum | W3 | 15-P | 33-As | 53-Te |
 paund an 18th century variant spelling of 'pand', a drapery | OED | 91-Pa | 92-U | 60-Nd |
 poise easy composure | W3 | 84-Po | 53-I | 34-Se |
 sasse a sluice or lock | W3 | 16-S | 33-As | 34-Se |
 sins transgressions | W3 | 14-Si | 7-N | 16-S |
 sno an 18th century dialect spelling of 'snow', partially frozen vapour | OED | 16-S | 7-N | 8-O |
 son a male offspring | W3 | 16-S | 8-O | 7-N |
 sop a conciliatory bribe | W3 | 16-S | 8-O | 15-P |
 spas mineral springs | W3 | 16-S | 15-P | 33-As |
 teses an inflected form of the verb 'tese', an early variant spelling of 'tease', to comb out | OED | 52-Te | 34-Se | 16-S |

Four symbols

algeias pain sensitivities | W3 | 13-AI | 32-Ge | 14-Si | 33-As |
 Arfon a district in Wales | Wikipedia | 18-Ar | 9-F | 8-O | 7-N |
 clons plural of 'clon', a 19th century variant spelling of 'clone', a population of genetically identical plants | OED | 17-Cl | 8-O | 7-N | 16-S |
 clops sounds made by hooves | W3 | 17-Cl | 8-O | 15-P | 16-S |
 Fons members of a Negro people of west Africa | W3 | 9-F | 8-O | 7-N | 16-S |
 fops dandies | W3 | 9-F | 8-O | 15-P | 16-S |
 fosse a canal, ditch or trench | W3 | 9-F | 8-O | 16-S | 34-Se |
 geasses plural of 'geasse', a 15th century variant spelling of 'guess', a conjecture | OED | 32-Ge | 33-As | 34-Se | 16-S |
 osses prophetic utterances | W3 | 8-O | 16-S | 34-Se | 16-S |
 Ossete a tall Aryan people of central Caucasus | W3 | 8-O | 16-S | 34-Se | 52-Te |
 passes proceeds | W3 | 15-P | 33-As | 34-Se | 16-S |
 pons a mass of nerve fibers | W3 | 15-P | 8-O | 7-N | 16-S |
 pops explodes | W3 | 15-P | 8-O | 15-P | 16-S |
 posse a crowd with a common interest | W3 | 15-P | 8-O | 16-S | 34-Se |
 sasses sluices or locks | W3 | 16-S | 33-As | 34-Se | 16-S |
 sesses taxes | W3 | 34-Se | 16-S | 34-Se | 16-S |
 snof a variant spelling of 'snuff', the burned part of a candle wick | OED | 16-S | 7-N | 8-O | 9-F |
 snop a sharp blow or impact | OED | 16-S | 7-N | 8-O | 15-P |
 sons male offspring | W3 | 16-S | 8-O | 7-N | 16-S |
 sops conciliatory bribes | W3 | 16-S | 8-O | 15-P | 16-S |
 sosse a 15-16th century variant spelling of 'soss', a sloppy mess | OED | 16-S | 8-O | 16-S | 34-Se |

Five symbols

Arfons the surname of Arthur Eugene "Art" Arfons, who was the world land speed record holder three times in 1964-1965 with his Green Monster jet-powered cars | Wikipedia | 18-Ar | 9-F | 8-O | 7-N | 16-S |
 assesses determines | W3 | 33-As | 34-Se | 16-S | 34-Se | 16-S |
 posses crowds with a common interest | W3 | 15-P | 8-O | 16-S | 34-Se | 16-S |
 snops sharp blows or impacts | OED | 16-S | 7-N | 8-O | 15-P | 16-S |
 sosses plural of 'sosse', a 15-16th century variant spelling of 'soss', a sloppy mess | OED | 16-S | 8-O | 16-S | 34-Se | 16-S |

Six symbols

nonpass	a type of school term Roget 7-N 8-O 7-N 15-P 33-As 16-S the OED spells the word with a hyphen, but gives it a very different meaning - a state of play in backgammon
nonpasse	an unhyphenated variant of 'non-pass', which appears in a 1688 illustrative quotation, being a state of play in backgammon OED 7-N 8-O 7-N 15-P 33-As 34-Se
ponson	an old spelling of 'puncheon', a tool for punching a design OED 15-P 8-O 7-N 16-S 8-O 7-N

Seven symbols

nonpasses	plural of 'nonpasse' - see above OED 7-N 8-O 7-N 15-P 33-As 34-Se 16-S
ponsons	plural of 'ponson' - see above OED 15-P 8-O 7-N 16-S 8-O 7-N 16-S
sponson	part of a ship W3 16-S 15-P 8-O 7-N 16-S 8-O 7-N

Eight symbols

sponsons	parts of a ship W3 16-S 15-P 8-O 7-N 16-S 8-O 7-N 16-S
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Two additional finds are worth recording here. The element with atomic number 107 is bohrium (symbol Bh). The original name proposed for element 107 was nielsbohrium (symbol Ns), but this was not agreed, and the temporary name unnilseptium (symbol Uns) was chosen, until a proper name could be agreed. Element 107 was eventually called bohrium. Given the temporary symbols Ns and Uns, they allow two more words to be added to my list, thus:

rens	plural of 'ren', an 18th century regional English word for a run or course OED 75-Re 107-Ns
reuns	a 17th century spelling of 'rounds', a verb meaning 'whispers' OED 75-Re 107-Uns

Note that Uns is the only element symbol in this article with three letters.

Bibliography

CED, 2014	Collins English Dictionary, 12th edition, 2014
OED	Oxford English Dictionary, online version as at January 2015
Roget	New American Roget's College Thesaurus in Dictionary Form (Revised & updated)
W3	Webster's Third New International Dictionary
Wikipedia	en.wikipedia.org

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