

AN ORDER 5 AFFINE GEOMETRY

NORWICH BUMSTEAD
St. Wordbuch, Maine



Please take note of the semimagic word square below.

BAT	REM	HIS	CON	WUD
CUR	SAD	BEN	WIM	HOT
OMS	HUN	CAW	TED	RIB
DIN	BOW	TUM	RAH	SEC
HEW	TIC	ROD	BUS	MAN

This square, composed of OED words, is semimagic because any row or column (the rook sweeps) anagrams into NORWICH BUMSTEAD. “Semi” means the diagonals don’t. However, there are 10 very special diagonals; those that have words with one of the five vowels A, E, I, O, U in common, or those that have the five consonants N, R, S, T, W (i.e. the last half of the alphabet) in common. These 10 sets of words are bishop sweeps. In addition to the 10 rook and 10 bishop sets there are 5 knight sweeps on the remaining consonants from the first half of the alphabet B, C, D, H, M. Also, there are 5 knight sweeps that anagram into NORWICH BUMSTEAD. An instance of this later type of knight sweep could be BAT-HUN-ROD-SEC-WIM. There is such a sweep starting in each of the four corners and one from the center square.

For example, a B-knight sweep is BAT-BEN-BOW-BUS-RIB. A C-knight sweep is CAW-CON-CUR-TIC-SEC. The E-bishop move is REM-BEN-TED-SEC-HEW, and the N-bishop move is CON-BEN-HUN-DIN-MAN.

This collection of $5^2 = 25$ words as “points” and $5^2 + 5 = 30$ “lines” of chess piece sweeps makes the square an order 5 finite Affine plane. See Oscar Thumpbindle’s article in this issue of *Word Ways* for further details.