



2008

The STENOGRAPHIC Affine Plane

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Recommended Citation

Thumpbindle, Oscar and Farrell, Jeremiah, "The STENOGRAPHIC Affine Plane" *G4G8 Exchange Book /* (2008): 295-296.

Available at https://digitalcommons.butler.edu/facsch_papers/921

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Presented by Oscar Thumpbindle
to honor Martin Gardner at G4G8

The STENOGRAPHIC Affine Plane

by Oscar Thumpbindle, Timberland Cusp, OH

Please take note of the semimagic word square below.

SAP	HON	RIG	TEC
COG	TAR	SHE	PIN
HIT	PEG	CAN	ORS
ERN	SIC	TOP	HAG

This square, composed of familiar words, is semimagic because any row or column (the rook sweeps) anagrams into STENOGRAPHIC. “Semi” means the diagonals don’t. However, there are four very special diagonals; those that have words with one of the four vowels of STENOGRAPHIC in common. These four bishop sweeps will be important later. Keeping with the chess piece theme, the reader will take notice of the knight 4-tours using the consonants P, H, R and C. For example one of these is the P-tour SAP, PEG, PIN and TOP. Another set of knight tours traces the letters S, T, G and N.

Recall that a finite Affine plane of order n must have n^2 points and n^2+n lines, with n points to a line. There must be at least three non-collinear points and the plane must satisfy the axioms:

- A1: Any two points determine a unique line.
- A2: Given any line and a point not on that line there is a unique line through the point parallel to the given line (i.e. has no points in common).

Ordinary Euclidean geometry satisfies these axioms and so does our STENOGRAPHIC word square. This square, an order 4 Affine geometry, has $4^2 = 16$ words as points and for the $4^2 + 4 = 20$ lines we have the 8 rook sweeps of the rows and columns, the 4 bishop sweeps of the 4 vowels and the 8 knight tours of the 8 consonants. There will be five sets of “parallel” lines: the 4 rook rows, the 4 rook columns, the 4 bishop sweeps on vowels and the 2 sets of knight tours on consonants.

An example of how the axioms are met could be: choose a line, say SAP-TAR-CAN-HAG and a point not on the line, say RIG. There is exactly one line through RIG that does not intersect the given line. Can you find it? It is the bishop line RIG-PIN-SIC-HIT. Now pick any two points, say RIG and ORS. What is the unique line that joins them? It is the R-knight’s tour.

Much, much more can be said about this square and will be said either in the journal *Word Ways* or on my website oscarthumpbindle.com. Please check for further developments.

ASIDE: I was asked by Tom Rodgers if I knew Oscar Thumpbindle. I had to admit that I have never met him face to face but some people have told me that they thought they saw him at G4G8 (see his countenance above). The reclusive and elusive Thumpbindle often drops off good articles at the *Word Ways* office but only when no one is there. I was surprised to see this STENOGRAPHIC article because Mr. Thumpbindle uses only the letters in his name in his papers. I was shocked to learn from an informant that Thumpbindle's middle name is Gy a word found in Jeff Grant's *The Concise Dictionary of 2 Letter Words* meaning "a strange hobgoblin-looking fellow". No wonder Oscar doesn't often use it! This is confirmed in Joseph Wright's *English Dialect Dictionary* where also, oddly enough, it is Scottish for "Gathering". The picture by David Lloyd of My Gy below is from Grant's *Dictionary*. This means of course that STENOGRAPHIC does use the letters of his name, leaving out only the letters DUMBLY. What else is known about Thumpbindle? Not much. He has claimed that Timberland Cusp, OH is only a "short buggy ride from Columbus" but no one I know can seem to find it. Also, he claims the gem Tourmaline as his birthstone which curiously makes October his birth month just like Martin Gardner. Any help readers can give me about the activities of Oscar Thumpbindle would be most welcome.

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