

GOOSE THIGHS REHASHED

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One day during his last illness, my father suddenly remembered a card trick from his boyhood. The trick involved the Latin mnemonic MUTUS NOMEN DEDIT COCIS. Everyone was astonished that a nonsense phrase had lain dormant in his mind's deepest recesses for more than sixty years, then sprung serendipitously to his weakened senses.

The same card trick was explained by Ross Eckler in the August 1968 issue of *Word Ways*. He provided an alternate, English mnemonic, BIBLE ATLAS GOOSE THIGH. Both mnemonics allow one to guess the placement of a particular pair of cards in a tableau of five columns and four rows. Eckler further suggested the mnemonic LIVELY RHYTHM MUFFIN SUPPER SAVANT to find a pair of chosen cards in a 30-card tableau of six columns and five rows. In the February 1972 *Word Ways*, Eckler extended his results to 42 cards in a 7-by-6 tableau, using the Webster's Third sanctioned mnemonic MEACOCK RODDING GUFFAWS TWIZZLE RHYTHMS KNUBBLY.

In the present article, my own goal is twofold: (1) to search the realm of seven-letter candidates systematically in order to find how rare 7-by-6 tableaus are, and thereby to find the easiest mnemonic to teach younger friends; (2) to extend the card trick to triplets and quadruplets of each letter. The latter approach has apparently never been considered before.

To appreciate the word patterns demanded by the mnemonics, it is important to know the card trick itself. Knowledgeable readers can skip the rest of this paragraph, wherein I reprise the basic steps. Select any 20 cards from an ordinary deck, for the four-row trick (alternatively, select 30 cards for the five-row trick, or 42 for the six-row one). Place the selected cards face down in separate two-card piles. Ask a volunteer to pick any two-card pile, to look at and memorize those two cards, and then to replace them face down. The volunteer should then form one stack from the piles, in any way that does not break up any two-card pile. The conjurer then plays the cards face up in four, five or six rows, according to the mnemonic. Each successive pair of cards is placed in positions corresponding to a single letter in the mnemonic. Suppose the mnemonic is RODEO DUMMY YELLS TRUST. You could put the first two cards in columns two and five of row one (corresponding to the O's), or in the rows and columns corresponding to the two R's, or any of the other eight repeated letters. Put the second pair, and each succeeding pair of cards, in positions corresponding to some repeated letter. Finally, ask the volunteer to indicate which row or rows contain his or her

selected cards. Whichever answer is given will determine a unique repeated letter, and the selected pair of cards will lie at the positions of that doubled letter.

I first systematically studied the problem of fitting 21 pairs of letters into a 7-by-6 tableau. As Eckler suggested in his article, vowels are one key to an efficient search for six-row solutions. If we restrict the vowels to AEIOU, then there is no way each of six words can have at least two vowels apiece, and still have no vowel appear more than twice. At least one word must have no AEIOU vowel, or at least two words of the six must have exactly one AEIOU vowel. To further expedite my search, I subsorted the candidate words by number of vowels and repeated letter. Thus, PSYCHIC fell into list 1-C. Only one word from any subcategory can fall into any solution. One can also use the symmetry of solutions to search only for words which alphabetically follow previously-found positions.

My corpus of words includes some 237,000 words of lengths between five and fifteen letters. 302 solutions emerged, several of which were particularly interesting:

* Three consisted entirely of words found in both the OSPD and the Random House Concise Dictionary:

BOMBARD, GRUFFLY, HUNCHED, JOTTING, PIMPLES, SKYJACK
BOWKNOT, CRACKUP, DISTAFF, HYPHENS, MUMBLED, WRIGGLY
CHECKUP, GRUFFLY, SYMPTOM, TANKARD, WISHING, WOBBLED

* Only three solutions used the letter X:

BEDBUGS, CACHEXY, DRIZZLY, FAWNING, FLUMMOX, TROWTHS
BOPPING, CHYMICS, GRUFFLY, HANDLED, WAXWORM, SUBTEXT
EXCYSTS, KNUBBLY, PADDLER, PICKOFF, THROUGH, WAXWING

Another seven used the letter V:

BADGING, CHAFFED, NYMPHLY, PTOTICS, VULVAR, WEBWORM
BOMBARD, CHUGGED, FLIVVER, NYMPHLY, SUNFAST, TOPKICK
BUDGING, CHUFFED, NYMPHLY, PTOTICS, VULVAR, WEBWORM
BUDGING, CONVECT, FLYBLEW, FOPPISH, THRUMMY, VAWARDS
BUZZARD, CLUTCHY, GYPERS, LONGBOW, VIVANTS, WHIFFED
CRUNCHY, GLOVING, PUZZLED, SYMPTOM, VAWARDS, WHIFFET
CUTBACK, GUZZLED, OFFHAND, PHYTYLS, PROVERB, SKIVING

Excysts, knubbly and phytyls occur in Webster's Third. Nymphly is a Webster's Second word. Vivant occurs in Hamlyn's Complete Crossword Dictionary.

* Eckler suggested two shorter mnemonics with multiple food images, the GOOSE THIGHS and MUFFIN SUPPER phrases. The most elementary six-row mnemonic is THIRSTY PUMPKIN BLACKLY SCUFFED HANGDOG WEBWORM.

* Longer mnemonics are most memorable if they form a phrase or sentence. Images formed by the 42-letter solutions include:

BOPPING CHYMICS GRUFFLY HANDLED WAXWORM SUBTEXT
THRUMMY KNOCKER WHAPPED FASCIST, BUDGING BLOWFLY

WOBBLER, PRIDING SYMPTOM, HATCHED KNUCKLY GUFFAWS
 JUMPOFF DOGSLED, RUBBING PECCANT RHYTHMS JAZZILY
 FIFTHLY, NUDNICK WHAMMED SCRAGGY TOPWORK PUZZLES

Each of the above tricks involves two-card piles, or equivalently pairs of letters. How about stepping up to three-card or four-card piles? We can first solve the trick where letters are repeated triply. The major complication will be that any given letter may have its three occurrences all in the same row, in two rows, or in three different rows. The simplest possible arrangement to satisfy these conditions is 21 cards in a 7-by-3 tableau. I was surprised to find only 19 solutions of this tableau in a large word list. These include three entirely formed by OSPD-sanctioned words:

GIDDIED, NOONING, GESSOES
 NINEPIN, PALLIAL, ASEPSSES
 PONTOON, APPARAT, ENTERER (or REENTER, TERREEN, TERRENE)

Another solution is my favorite: SINNING, GOOGOLS, ALALIAS. To use this mnemonic you might lay down two successive cards in the places of the I's in SINNING in the first row, followed by a card in the third row in the position of the I in ALALIAS. You would lay down successive triplets of cards in positions corresponding to repetitions of a single letter. Finally, you would ask the volunteer to point to the row or rows in which his cards appear. Any of the seven possible answers determines a unique trio of cards.

A variation of the triplet problem collects 14 piles of three cards each, and arranges them into four rows. Half the rows have eleven cards each; the other half have ten cards each. To solve this problem I needed assistance from two large word lists provided by Ted Clarke and Len Gordon. The 62 solutions included the three below. The first two include only uncapitalized, noncompound words found in Webster's Second or Stedman's Medical Dictionary; the first and third present distinctive images.

UNBRAGGING, PINEAPPLES, BUCCOCLUSAL, BITTERROOTS
 WORRYWARTS, WAGGLINGLY, SADDLENOSED, CYTOCINETIC
 UNGUTTURAL, PIG BOILING, STOPPERLESS, BED AND BOARD

To confirm these solutions for yourself, choose one and pick any combination of rows, up to three. For example, take rows two and four in the first solution. Three E's are divided between rows two and four. The chosen cards would correspond to these three positions.

Next, we can tackle the extension involving piles of four cards. The simplest tableau to encompass all combinations of one, two, three or four rows is a 15-by-4 arrangement. Since this entails 60 cards, exceeding the number of cards in a standard deck, any solution is probably only of theoretical interest. Two working solutions are given below.

No foursome of simple fifteen-letter words could be fitted together to form a tableau. Instead, the following mnemonics replace one or two of the four fifteen-letter words with phrases, but otherwise

meet the challenge of an easily-remembered mnemonic for the four-card pile challenge:

NONPROPORTIONAL	DACTYLALGICALLY
FLIBBERTIGIBBET	NONREGENERATING
DAUNT ADDED FLUFF	SPECTROSCOPISTS
PLUGS GRASP GUESS	YOU HUNT PUNCH CUP

For either mnemonic, ignore all spaces. Now pick any row, any two rows, any three rows, or all four rows. There is a unique letter found only in that combination of rows! Each row possesses a special property: it contains exactly one letter repeated four times, at least one unrepeated letter, and exactly eight different letters altogether. Of a total 11,500 fifteen-letter words in the word lists of Gordon, Clarke and myself, only 340 words met these three conditions.

Like other successes, the BIBLE ATLAS GOOSE THIGH algorithm begs for variants and extensions. The alternative conditions and solutions that I have explored here all flow logically from the original problem. They also form appealing card tricks on their own. Doubtless, these extensions will suggest yet further extensions to the reader.

BRED ANY GOOD ROOKS LATELY?

Word Ways readers who have enjoyed Peter Newby's *Fabled Phrases* (August 1992, August 1993, February 1994) should welcome the latest addition to Dell's paperback *Intrepid Linguist Library*. As the title suggests, the book's purpose is to take a distortion of a well-known phrase and construct a story that uses it as a punch line; for example, the title above is the text of a telegram sent by the London City Council who, alarmed by city pollution decimating the rook population, has set up a breeding farm in Bangor. There's 50 more short stories of this ilk, written by guest authors as disparate as Isaac Asimov and Willard Espy. It's fun to cover up the punch line while reading each story to see if you can guess what is being set up. Be aware that distortions can take many forms. In addition to the Spoonerism above, one encounters *Anguish Languish* (*The Moron Tab and Apple Choir*), pure homonyms (*the Czech is in the mail*), and simple word-scrambles (*all work and no jack makes "Boy" a dull play*). Lots of fun!