100 QUALITY 6-BY-6 WORD SQUARES

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The history of word square construction in the United States has largely been one of strenuous attempts to build the largest possible word squares. While size is a legitimate objective in logological pursuits, word square experts such as the formists of the Eastern Puzzlers' League and the National Puzzlers' League permitted that objective to dominate them completely. As a result, they sacrificed word square quality: most of their constructions were of unacceptably low quality. More recently, word lists have been fed into computers programmed to construct all word squares extractable from words in the lists used. In the November 1975 issue of Word Ways, M.D. McIlroy presented a tableau of 34 word squares, 7x7 in size, generated by a computer. McIlroy followed this accomplishment with a collection of 90 double word squares 6x6 in size, in the May 1976 issue of Word Ways, these squares also generated by computer. Again, no attention was paid to word square quality, but the nature of the word list used excluded outrageous words and names of the sort that had become the stock-in-trade of formists bent on constructing 9x9 squares.

The purpose of this article is to redress the balance by establishing the general principles governing word square quality, then displaying collections of squares of various sizes that conform to those principles.

The first principle defining a high-quality word square also defines its essence: it is an array of words reading the same vertically as it does horizontally. That definition consequently excludes double word squares from consideration. I fully realize that double word squares are manually more difficult to construct than ordinary or single word squares - manually, for computers couldn't care less, as long as they are programmed properly to produce squares conforming to any desired set of conditions. However, the greater difficulty of constructing double word squares manually does not entitle them to rank as word squares. It is the repetition vertically of a square's horizontal words that gives it its individuality, its uniqueness, its aesthetic appeal, and its raison d'être. The double word square is essentially similar to a field in a crossword puzzle that happens to be free of black squares, only larger and more regular in shape. Since all of us have seen thousands of crossword puzzles, the word arrays of which they consist afford no pleasure, even if they are increased in size and made into perfect squares. It is the uniqueness of the true word square that gives us aesthetic satisfaction, and true squares are the only ones

included in this article.

The second principle defining a high-quality square states an obvious requirement: the square must look like one consisting entirely of modern English words and names. To look like such a square, it must generally consist exclusively of such words and names. True, there are some obsolete English words that can pass for modern English words – if you don't happen to know them and until you consult a dictionary to find out what they mean. Examples of words that look like modern English words but which are classified as obsolete by both the Second and Third Editions of Webster's Unabridged include CONDITE, IMPULSOR, and ROPETRICK – there are thousands of others. Most obsolete words, however, are easily recognized because they look unlike modern English – Y-WROKEN, JEALISOM, and ADAWE, for instance. Equally unacceptable are various other classes of words such as Scottish, dialectal, slang and colloquial words, and reformed spellings.

Neither are all acceptable terms equal in standing. Words are qualitatively superior to names; solidly-written words rank ahead of hyphenated words, which rank ahead of two-or-more-word terms. Regular words are preferred both to archaic ones and to those that dictionaries label as foreign. Common words, easily recognized by any reasonably literate individual, take precedence over obscure ones that only an expert in English could be expected to recognize, and ordinary or literary terms are preferable to highly technical terms from the fields of science, technology, medicine, law, and similar specialties. There are too many classifications into which words and names can fall to enumerate them all, but whatever the situation is, common sense and logical principles must be applied to decide whether a given word or name should be accepted in a given situation.

Size of word square also plays a role. The larger the square, the more difficult it is to construct, and the greater is the temptation to relax the rules of word acceptability – and the justification for actually doing so. None of the rules governing word choice is subject to quantification or to expression in a manner that permits their automatic, unthinking application. The word-square constructor is obliged to use his soundest judgment in evaluating each word – he or she cannot delegate the responsibility to impersonal rules, or to a computer. Language isn't mathematics: it must be dealt with consciously and intelligently.

My presentation of high-quality word squares, constructed and/or selected in accordance with the foregoing and allied principles, using my judgment in applying those principles to individual words and word squares, is confined to 6x6 squares. The field of 6x6 word squares has been a sort of no-man's-land: the average crossword-puzzle devotee finds squares of that magnitude far too difficult to construct, the trained formist finds them much too easy to merit his attention, and most modern-day logologists don't have the patience needed to construct word squares manually, when the job can, presumably, be done so much more efficiently by compu-

ters. As a result, no collection of high-quality 6x6 word squares has ever been published anywhere.

The appendix to this article presents 100 such squares, alphabetized by their first words. No comparable collection has ever appeared before in print. Excluded from these squares are hyphenated words, two-word terms, and very uncommon words and names. However, the reader looking for automatic rules governing word choice will be disappointed. There is, for example, no single dictionary or other reference work that includes all of the words and names in these squares: the use of sound judgment in selecting words and names in the squares necessarily cuts across the boundaries of reference works. Neither did l observe an arbitrary rule such as one limiting words and names to those appearing in boldface type in one or more reference works. My objective was to produce aesthetically satisfying squares, and that objective is incompatible with observance of arbitrary rules.

A few of the squares use one or the other of two words which l would have been happier not to include in squares only 6x6 in size: ETERNE and ESSENE. The first of these is archaic, the second a little too uncommon. However, archaic words have always had a psychologically-pleasant aura surrounding them - for me. Why, I am not sure: most of us have nostalgic feelings about some probably imaginary, yet appealing former time when life was simpler and happier than it is now - a yearning for a return to the "good old days." For this reason, l have always accepted archaic words in my logological work, and the concept of eternity which the word ETERNE expresses - a concept linked with infinite extent and power, and with immortality - provided an irresistible compulsion to use it, wherever appropriate. My reason for accepting the word ESSENE was a more practical one: sheer expediency.

One of the aesthetic requirements governing any substantial word collection is that each letter of the alphabet be represented at least once as an initial letter. A quick check of the 100 sixth-order squares shows that their initial words begin with only 23 of the 26 letters of the alphabet - l, X, and Z are missing. The absence of the letter I is accidental; that of the other two letters reflects the difficulty of constructing squares beginning with X or Z, using common words and names only. Below l present three additional squares beginning with the three missing letters. Included in these three squares are four words l would not otherwise tolerate in sixth-order word squares - CELIAC, EGENCE, XIPHOS and ZOSTER. Readers may wish to try their hands at constructing qualitatively superior squares to replace mine. Doing so may or may not be possible for the X and Z cases, but is definitely pos-

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I N T A C T        X I P H O S        Z O S T E R        S Q U A R E
N E A T E R        I D E A T E        O U T A G E        Q I N T A R
T A T T L E        P E O R I A        S T Y L E S        U N L A C E
A T T A I N        H A R L O T        T A L E N T        A T A V I C
C E L I A C        O T I O S E        E G E N C E        R A C I S T
T R E N C H        S E A T E D        R E S T E D        E R E C T S
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sible for the 1 case – 1 simply haven't taken the time to do so.

Included among the 100 squares are three beginning with the word CIRCLE. Famous in the domain of mathematics is the problem of squaring the circle – finding the side of a square with an area exactly equal to .the area of a given circle, using ruler and com-pass only. Quadrature of the circle was eventually proved to be mathematically impossible using only the specified instruments, but has been achieved with more sophisticated equipment. In a figurative sort of way, the three CIRCLE squares are the logologi-cal equivalent of squaring the circle – achieved with aplomb and elegance. Note that, with the exception of the word CIRCLE, no word appears in more than one of these three squares.

Spinoffs from this particular problem abound. 1 have squared the triangle by calling it a TRIGON, and the SPHERE under its usual name. Squaring the SQUARE is much more difficult, and do-ing so using common words and names only seems to be impossible. (All acceptable Q-words have a vowel in the third position, and there are no acceptable U-words with a vowel in the second posi-tion.) Following the three special I, X, and Z squares is a fourth one, squaring the SQUARE, using the very uncommon and un-Eng-lish word QINTAR: the Albanian penny, listed in three of the five current collegiate dictionaries.

Mathematically-minded readers may wish to analyze the original group of 100 squares to determine which particular words appear in it most frequently, in which positions words beginning with vow-els are more useful than words beginning with consonants, what the maximum number of variations is to which any particular square can be subjected (all of them can be altered to produce closely-related squares), and similar facts about the squares. They may also wish to try replacing squares including words which they happen to regard as objectionable with squares of superior quality. Other things to look for include palindromes, near palindromes, tautonyms, reversals, and other logologically-interesting phenomena.

For readers who seek a tremendous challenge, 1 recommend try-ing to construct a square consisting exclusively of simple words and names, the main diagonal of which, running from the upper left to the lower right corner, spells a seventh common word or name. Shown below is such a square, in which the word BUSIES occupies the main diagonal. The diagonal word need not run down the diagonal; it may just as well run up it. See how many such squares you succeed in constructing – any that you do produce are worth reporting to the editor. Note, incidentally, that the sixth word in the square above, STEELS, is a reversal of SLEETS: an

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B R I E F S        F E T I C H        J U C K O W
R U N L E T        E N A B L E        U G R I P H
I N S A N E        T A K I E R        C R Y N D A
E L A I N E        I B I D A E        K I N X E L
F E N N E L        C L E A N S        O P D E S T
S T E E L S        H E R E S Y        W H A L T Z
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additional feature making this square interesting. Can you do as well or better?

Here is a different sort of challenge for would-be experts. What is the maximum number of different letters of the alphabet that you can work into a 6x6 word square? The theoretical maximum is 21 (the mechanics of the word square do not permit more than 21 different letters to appear in it). Shown on the preceding page is a square using 15 different letters - but three of the six words are objectionable: FETICH is an uncommon variant of FETISH; IBI-DAE is an uncommon variant of IBIDIDAE, which is an uncommon syno;nym for THRESKIORNITHIDAE, the family including the ibises and the spoonbills; and TAKIER is the comparative form of the uncommon adjective TAKY ("given to taking"). Can you devise a 15-letter square using more common words? Or one using 16 different letters with no questionable words? Try!

What would a 21-letter square look like? Shown on the preceding page is such a square. The problem is that none of the letter combinations in it are real words or names - at least, I don't believe that they are. If you can find them in reference works, let the editor know!

If you have a great deal of time on your hands, let me suggest other goals toward which you may wish to work. One is to rework my set of squares so that they begin with 100 different words. Next, rework them again, so that they also end with 100 different words. Finally, rework them so that no word appears more than once in the entire set of 100 squares: in other words, use 600 different words or names in the 100 squares. Be certain, however, that you maintain word quality - don't use any words or names that you know I wouldn't use!

APPENDIX

A D A G E S	A M E N D S	A M U S E D	A N G O R A
D E R U S T	M I N I O N	M A N N E R	N E R V E S
A R N I C A	E N A B L E	U N P A L E	G R E E N S
G U I T A R	N I B B L E	S N A K E S	O V E R D O
E S C A P E	D O L L A R	E E L E R S	R E N D E R
S T A R E D	S N E E R S	D R E S S Y	A S S O R T

A S P I R E	A S P I R E	A T T I C A	B A N T E R
S H A R E R	S T A T A L	T R A D E S	A H O R S E
P A R O L E	P A L A C E	T A L E N T	N O V I C E
I R O N I C	I T A L I C	I D E A T E	T R I B A L
R E L I S T	R A C I S T	C E N T E R	E S C A P E
E R E C T S	E L E C T S	A S T E R S	R E E L E D

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BASEST     BASSET     BASSET     BETEEM
ABIDER     AFLAME     ATTUNE     ETHANE
SILICA     SLOVEN     STANDS     THIRST
EDITED     SAVORS     SUNLIT     EARLET
SECEDE     EMERGE     ENDIVE     ENSEAL
TRADER     TENSED     TESTED     METTLE


BISHOP     CANTON     CAPERS     CARTEL
IMPALE     AVERSE     AMULET     AVERSE
SPINET     NEGATE     PUMICE     REBASE
HANGAR     TRACED     ELIXIR     TRADER
OLEATE     OSTEAL     RECIPE     ESSENE
PETREL     NEEDLE     STEREO     LEERED


CEASED     CHASMS     CIRCLE     CIRCLE
ENGINE     HEREAT     IBERIA     ICARUS
AGENDA     ARCANE     REMINT     RAREST
SINFUL     SEATER     CRINGE     CREATE
ENDURE     MANEGE     LINGER     LUSTER
DEALER     STEREO     EATERS     ESTERS


CIRCLE     COMATE     CORONA     CRAMPS
INURES     OLIVET     OMELET     RETIRE
RUDEST     MIRISH     REHEAT     ATONER
CREASE     AVIATE     OLEATE     MINUTE
LESSEE     TESTER     NEATEN     PRETAN
ESTEEM     ETHERS     ATTEND     SERENE


DAPPER     DAPPLE     DEMURE     ENDURE
AHORSE     AZALEA     EVENER     NEARER
POLITE     PALEST     MEXICO     DAMAGE
PRIMAL     PLEASE     UNITED     URANIC
ESTATE     LESSER     RECEDE     REGILT
REELED     EATERS     ERODES     ERECTS


ERECTS     ESTATE     ETHICS     FAIRER
RETAIL     SHAVEN     TRINAL     ANNEXE
ETERNE     TALENT     HIGHLY     INWRIT
CAROLE     AVERSE     INHALE     REROSE
TINLET     TENSER     CALLUS     EXISTS
SLEETS     ENTERS     SLYEST     RETEST
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F E I G N S      F E L I N E      F L E E T S      F O E T U S
E N T A I L      E R O D E S      L I N N E T      O C T A N T
I T A S C A      L O W E S T      E N T I R E      E T E R N E
G A S K E T      I D E A T E      E N I G M A      T A R S A L
N I C E N E      N E S T O R      T E R M E D      U N N A I L
S L A T E D      E S T E R S      S T E A D Y      S T E L L A


F O R E S T      F R A M E D      F R A M E S      F R E E S T
O P E N E R      R E M O V E      R E L I S H      R E D D E R
R E T I L E      A M U L E T      A L A S K A      E D W I N A
E N I S L E      M O L I N E      M I S D I D      E D I T E D
S E L L E R      E V E N T S      E S K I M O      S E N E C A
T R E E R S      D E T E S T      S H A D O W      T R A D A L


F U S S E D      G A R B E D      G A R T E R      G L U E R S
U N T A M E      A V E R S E      A V E R S E      L I N N E T
S T E V E N      R E V I S E      R E C I T E      U N N I C E
S A V O R S      B R I B E D      T R I B A L      E N I S L E
E M E R G E      E S S E N E      E S T A T E      R E C L A D
D E N S E R      D E E D E D      R E E L E R      S T E E D S


G R A D E S      G R A V E S      G R I E F S      G R O U N D
R E B A L E      R E G E N T      R U N L E T      R O U S E R
A B A T E R      A G E N D A      I N S A N E      O U T A W E
D A T I V E      V E N D E R      E L A I N E      U S A G E S
E L E V E N      E N D E A R      F E N N E L      N E W E L S
S E R E N E      S T A R R Y      S T E E L Y      D R E S S Y


H O U S E D      J A S P E R      J U R I S T      K E E L E Y
O R N A T E      A T T U N E      U S A N C E      E N T A M E
U N E V E N      S T I L T S      R A F T E R      E T U D E S
S A V E R S      P U L P I T      I N T O N E      L A D E R S
E T E R N E      E N T I C E      S C E N E S      E M E R G E
D E N S E R      R E S T E D      T E R E S A      Y E S S E S


K E E P E R      K I L L E D      L A S H E S      L O S E R S
E N T I R E      I D E A T E      A R T E R Y      O M E L E T
E T H E R S      L E S S E N      S T O R M S      S E N I L E
P I E M A N      L A S E R S      H E R M I T      E L I X I R
E R R A T A      E T E R N E      E R M I N E      R E L I V E
R E S N A P      D E N S E R      S Y S T E M      S T E R E O
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M A R I N A      M E R C E R      M E S H E D      M I L L E T
A B I D E S      E Q U A T E      E Q U A T E      I D E A T E
R I V E T S      R U I N E D      S U L L E N      L E A V E N
I D E A T E      C A N A R D      H A L E R S      L A V E R S
N E T T E R      E T E R N E      E T E R N E      E T E R N E
A S S E R T      R E D D E R      D E N S E R      T E N S E R


M O J A V E      M O N A D S      N E S T O R      N U B B I N
O Z O N E S      O M E L E T      E M P A L E      U P L A N E
J O K E R S      N E S T L E      S P A R E D      B L E N D S
A N E M I A      A L T A I R      T A R S A L      B A N D I T
V E R I T Y      D E L I M E      O L E A T E      I N D I T E
E S S A Y S      S T E R E O      R E D L E G      N E S T E D


O U S T E D      P A S S E R      P A S T O R      P L A N E S
U N T A M E      A M P E R E      A T T I R E      L O C A L E
S T A M E N      S P I R E S      S T U P I D      A C U T E R
T A M E R S      S E R E N E      T I P T O E      N A T I V E
E M E R G E      E R E N O W      O R I O L E      E L E V E N
D E N S E R      R E S E W N      R E D E E M      S E R E N E


P L A S M A      P L E A S E      P U R S E D      Q U I V E R
L E S T E R      L A R D E R      U N E A S E      U N N O S E
A S T A R T      E R R A T A      R E F U S E      I N C I S E
S T A N C E      A D A P T S      S A U C E D      V O I C E D
M E R C E R      S E T T L E      E S S E N E      E S S E N E
A R T E R Y      E R A S E D      D E E D E D      R E E D E D


R A C I S M      R A D I S H      R A R E S T      R A S C A L
A D A N C E      A V E N U E      A D A N C E      A C T I V E
C A U S A L      D E N S E R      R A N G E R      S T A G E S
I N S U R E      I N S I D E      E N G I N E      C I G A R S
S C A R C E      S U E D E S      S C E N E S      A V E R S E
M E L E E S      H E R E S Y      T E R E S A      L E S S E R


R A V E N S      R E C A N T      R E M A D E      R E S O R T
A B U S E E      E V E N E R      E N A M E L      E W E R E R
V U L C A N      C E N T R E      M A C U L A      S E M E L E
E S C O R T      A N T H E A      A M U L E T      O R E G O N
N E A R E R      N E R E I D      D E L E T E      R E L O A D
S E N T R Y      T R E A D S      E L A T E D      T R E N D S
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R E T I R E	R E V E A L	S A B E R S	S A C R E D
E L A T E R	E N I G M A	A M U L E T	A D H E R E
T A M A L E	V I N O U S	B U T A N E	C H A L E T
I T A L I C	E G O I S T	E L A T E R	R E L A C E
R E L I S T	A M U S E E	R E N E G E	E R E C T S
E R E C T S	L A S T E D	S T E R E O	D E T E S T
S L E E T Y	S O U N D S	S P H E R E	T A L K E D
L O N N I E	O B V E R T	P L A N E R	A T O N E R
E N H A T S	U V U L A R	H A R D E R	L O C A L E
E N A C T S	N E L L I E	E N D I V E	K N A V E S
T I T T L E	D R A I N S	R E E V E S	E E L E R S
Y E S S E S	S T R E S S	E R N E S T	D R E S S Y
T A P E R S	T A P P E D	T I N S E L	T O S S E D
A V O C E T	A R I A N E	I D E A T E	O C T A V E
P O M A D E	P I P P I N	N E R V E S	S T Y L E T
E C A R T E	P A P I S T	S A V O R S	S A L I N E
R E D T O P	E N I S L E	E T E R N E	E V E N E R
S T E E P S	D E N T E D	L E S S E E	D E T E R S
T R I G O N	U M P I R E	U N B A S E	V A S S A L
R E B A T E	M E E T E R	N E U R O N	A C T I V E
I B E R I A	P E L A G E	B U R R E D	S T O R E S
G A R R O T	I T A L I C	A R R I V E	S I R E N S
O T I O S E	R E G I L T	S O E V E R	A V E N G E
N E A T E R	E R E C T S	E N D E R S	L E S S E N
V E R B A L	V O I D E R	W I N N E R	Y E S S E S
E T E R N E	O C T I L E	I D E A T E	E S T A T E
R E D O N E	I T A L I C	N E S T E D	S T E V E N
B R O K E R	D I L U T E	N A T U R E	S A V E R S
A N N E X E	E L I T E S	E T E R N E	E T E R N E
L E E R E D	R E C E S S	R E D E E M	S E N S E D