

ALL-DIAGONAL EIGHT-SQUARES

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When I first subscribed to Word Ways and enquired about word squares with diagonal words, Jeff Grant commented that such items were rare and hard to find. That is true, but here is a rather belated reply!

An eight-square is a square array of eight different 8-letter words placed in rows, so that column 1 is the same word as row 1, column 2 the same as row 2, and so on. Contrary to the opinion of one soi-disant expert, words of length 1 to 7 are inadmissible. All word squares necessarily have a palindromic NW-SE diagonal, and in the squares below, this palindrome is a word. In the squares below, the diagonal starting on the NW corner is also a word, as is the diagonal starting in the SE corner: alert readers will spot the implication that the word on this diagonal is a reversible word. As palindromic words and reversible words are scarce, so are all-diagonal squares. In the case of 9-squares, I found squares with all three diagonals, but never in the same square. I conclude that the squares below are the largest all-diagonal squares ever published. The squares in this article are one-tenth as common as ten-squares.

In fact, out of over three-quarters of a million 8-letter words, there were just 496 reversible words (you could say 2×248), and only 170 palindromes. The squares below were selected from 212, with a bias to dictionary words. I could not construct a square without proper nouns. I found no squares starting F, J, O, P, Q, or U-Z at the top left. The squares on the following pages are in order of top row word within palindrome. The most popular palindromes were: AAAAAAAAA 149, HRRRRRRRH 17, SAASSAAS 11, EEEEEEEEE 9, SISSIIS 5, SNERRENS 5, ANNEENNA 3, ANASSANA 2, SEISSIES 2, with ANNAANNA, ANTEETNA, KNITTINK, LIILLIL, MMMMMMMM, SFISSIFS, SHALLAHS, SNIBBINS, TUUTTUUT occurring just once each. Following each square are the diagonals, as read from NE or SW, NW, and SE. The square below is one of a few that has place names as ten of the eleven items (the palindrome being the exception).

M Y S A T I Y A	Mys Atiya, Bulgaris, 42°28, 27°35
Y I A L O V A S	(Potamos) Yialovas, Greece, 36°57, 21°42
S A L A N A N G	(Phou) Salanang, Laos, 19°47, 102°35
A L A L A N D A	*(Tawil) al-'Alanda, Libya, 33°03, 11°36
T O N A I J A R	(Ouled) Tonaijar, Morocco, 34°30, -5°49
I V A N J S K I	Ivanjski (Bok), Croatis, 45°20, 16°44
Y A N D A K L Y	†(Rodnik) Yandakly, Turkmenistan, 37°49, 64°38
A S G A R I Y E	(Chah-e) 'Asgari-ye (Kamran), Iran, 31°50, 54°26
	* or ALALANGA (Quebrada) Alalanga, Peru, -14°39, -74°14
	† or YANGAKLY (Kolodets) Yangakly, Turkmenistan, 38°21, 64°14
AAAAAAAAA	Pa, a Brooklyn business name
MILLISLE	Millisle, UK, 54°36, -5°32
ELSILLIM	Naqb el-Sillim, Egypt, 27°46, 28°33

Place names are from the NIMA database. ITIS is the Integrated Taxonomic Information System of the USDA (Dept. of Agriculture). Pa is the Palindromicon. Latitude precedes longitude.

The following three look different, but have the same diagonals:

D A S G U P T A author of History of Indian Philosophy, US Census
 A R P A A L A N Arpaalan, Turkey, 40°22, 37°52
 S P A N I A R D OED
 G A N G A N T A Ganganta, 14°03, -10°45
 U A I A N A R I Cachoeira Grande de Uaianari, Brazil, 0°41, -64°13
 P L A N A E I N Greek to wander, hence "planet"
 T A R T R I T E OED
 A N D A I N E S Saint-Michel-des-Andaines, France, 48°35, -0°25
 A A A A A A A A Pa, a Brooklyn business name
 D R A G N E T S OED tip 2, 1955q
 S T E N G A R D Stengard, Sweden, 57°45, 14°42

D O M B O S H A Dombosha, Zimbabwe, -19°55, 31°34
 O R B E R T A L Orber Tal, Germany, 50°15, 9°21
 M B A N G A R I Mbangari, South Africa, -24°12, 31°38
 B E N G A L I E (Baie du) Bengalie, Vietnam, 20°44, 107°00
 O R G A N M A N OED organ 8, 1626q
 S T A L M E N T OED
 H A R I A N T E OED verme
 A L I E N T E S OED turn 25, 1526q
 A A A A A A A A Pa, a Brooklyn business name
 D R A G N E T S OED tip 2, 1955q
 S T E N G A R D Stengard, Sweden, 57°45, 14°42

D U N S M A L A Dunsmala, Sweden, 56°32, 14°46
 U R T A A R A L (Ostrov) Urta-Aral, Kazakhstan, 45°23, 73°52
 N T A N T A M A Ntantama, South Africa, -27°09, 30°20
 S A N G A M I N (Dahane) Sangamin, Afghanistan, 34°10, 63°32
 M A T A N A N I Matanani, Cameroon, 4°59, 8°55
 A R A M A E A N OED
 L A M I N A T E OED
 A L A N I N E S OED
 A A A A A A A A Pa, a Brooklyn business name
 D R A G N E T S OED tip 2, 1955q
 S T E N G A R D Stengard, Sweden, 57°45, 14°42

The following three look different, but have the same diagonals:

S H A M M A S A (Wadi Ganis esh) Shammaasa, Sudan, 15°17, 34°25
 H A L B A D A N Halbadan, Finland, 62°51, 21°07
 A L B A H A C A Web2
 M B A B A R A M in the Australian South-East Marine Region*
 M A H A A A L I Mahaa Ali, Yemen, 14°49, 43°33
 A D A R A T A R Ot 2 after adorative ST
 S A C A L A I T OED sac-à-lac
 A N A M I R T A Anamirta cocculus, Chambers coccus

*http://aqua.hba.marine.csiro.au:7373/nddq/owa/ndd_search.Browse_Citation?txtSession=114

A A A A A A A A Pa, a Brooklyn business name
 S A B B A T I A OED
 A I T A B B A S Ait Abbas, Algeria, 36°33, 4°13

S M A B A C K A Smabacka, Sweden, 64°27, 20°49
 M A L A K H A N Mala Khan, Afghanistan, 30°29, 63°23
 A L B I C A N T OED
 B A I B A N D A Bai Banda, Pakistan, 34°19, 73°01
 A K C A A G I L Akcaagil (Koyu), Turkey, 40°12, 38°04
 C H A N G T S O Chang-ts'o, Taiwan, 25°02, 121°07
 K A N D I S I M Kandi Sim, Pakistan, 26°43, 69°04
 A N T A L O M A (Cerro) Antaloma, Peru, -11°49, -76°15
 see above for diagonals

S T A B A C K A Stabacka, Finland, 62°24, 21°21
 T A L A G H A N Talaghan, Iran, 36°23, 50°25*
 A L B I C A N T OED
 B A I B A N D A Bai Banda, Pakistan, 34°19, 73°01
 A G C A A G I L Agcaagil Turkey, 40°12, 38°04†
 C H A N G T S O Chang-ts'o, Taiwan, 25°02, 121°07
 K A N D I S I M Kandi Sim, Pakistan, 26°43, 69°04
 A N T A L O M A (Cerro) Antaloma, Peru, -11°49, -76°15
 * or TALAKHAN Talakhan, Russia, 64°23, 119°57
 † or Akcaagil (Koyu), Turkey, 40°12, 38°04
 see above for diagonals

E S T R E L I A (La) Estrelia, Colombia, 3°46, -76°27
 S T E A L Y N G OED occasional 1, 1563q
 T E T T A N T O (Ozero) Tettan-To, Russia, 68°29, 70°36
 R A T E A T E N rat-eaten, OED rat c
 E L A A L A L I El Aalali, Lebanon, 34°12, 35°46
 L Y N T A L L S OED limtel 1, 1601q
 I N T E L L E T (Oued) i-n- Tellet, Algeria, 28°44, 7°37
 A G O N I S T S OED
 ANNAANNA Anna Anna, Pa, personal name, my twins!
 ETTELLES OED ettle 1a, 1400q
 SELLETTE OED

A L M A S N A A Al-Masna`a, Oman, 23°46, 57°38
 L I A N T A N G Liantang, China, 32°52, 118°38
 M A N O E N D I (Kaap) Manoendi, Indonesia, -0°38, 135°22
 A N O A E T O S Ano Aetos, Greece, 38°01, 24°27
 S T E E R I N G OED
 N A N T I R I A Nantiria, Mozambique, -13°26, 39°22
 A N D O N I A N US Census
 A G I S G A N G Agisgang (River), Philippines, 13°30, 120°35
 ANNEENNA Anne Enna, Pa, personal name
 AINARRAG Ain Ar Rag, Western Sahara, 25°50, -13°17
 GARRANIA (Bir el) Garrania, Libya, 31°10, 15°04

DESSENDE	OED
ERWENDEN	see OED awend (German version)
SWARTEST	OED swart, adjective
SERGEANTE	OED sergeant (Italian form)
ENTENDER	OED <i>OR</i> ENTENDET OED matter 19b, 1460q
NDENDENI	Ndendeni, South Africa, -27°23, 30°45
DESTENTE	OED detent (Old French version)
ENTERIES	OED quader, 1588q <i>OR</i> ENTITIES OED
EEEEEEEE	Pa, Ulysses, James Joyce
DRAGNETS	OED tip 2, 1955q
STENGARD	Stengard, Sweden, 57°45, 14°42

Two squares, with diagonals similar to some previous ones.

STOWINGE	OED stow, 1641q
TUVANGEN	Tuvangen, Sweden, 59°43, 14°47
OVERSEME	OED
WARRENER	OED
INSEING	OED
NGENINGI	Ngeningi, , Tanzania, -5°20, 39°46
GEMENGED	OED white, 1000q (g has Anglo-Saxon form)
ENERGIDS	OED energid
EEEEEEEE	Pa, Ulysses, James Joyce
SUERENES	OED sweerness 1, 1456q
SENEREUS	Senereus, Romania, 46°20, 24°39

AMTASHAH	Amtashah, Sudan, 10°49, 24°54
MIANPARA	Mianpara, Bangladesh, 23°20, 90°04
TANGURMI	Tangurmi, Nigeria, 10°42, 12°10
ANGARBAH	Angarbah, Pakistan, 35°47, 71°58
SPURRERS	OED spurrer
HARBERIE	OED
ARMARIAN	OED
HAIHSENG	Hai-hseng, Burma, 21°34, 98°00
HRRRRRH	hr-r-r-r-rh, Pa, EDD
AINARRAG	Ain Ar Rag, Western Sahara, 25°50, -13°17
GARRANIA	(Bir el) Garrania, Libya, 31°10, 15°04

SHABABIK	Shababik, Israel, 33°03, 35°37
HELOUANI	Karm el Helouani, Syria, 35°31, 36°05
ALLUSION	OED
BOULTERS	OED boulter
AUSTERNE	OED austere
BAIERTAL	Baiertal, Germany, 49°41, 9°45
INORNATA	Grindelia inornata angusta, ITIS plant
KINSELAE	(Quercus) kinselae (glandulosa), ITIS plant
KNITTINK	Pa
SELLETTE	OED
ETTELLES	OED ettle 1a, 1400q

NGKESILL	Ngkesill, Palau, 7°13, 134°23
GIANTRIE	OED giantry, 1611q
KACHAINA	Kachaina, Niger, 14°52, 8°20
ENHOLDEN	OED pyrite 1, 1567q
STALLIAN	OED stallion
IRIDIATE	OED
LINEATUS	OED hen-hawk. Buteo lineatus is the blue hen-hawk
LEANNES	OED
LIILLIL	liil'liil', Pa, Yapese
NICOLAUS	OED boon 1, 1641q: Nicolaus Damascenus
SUALOCIN	Web2 Sualocin

GLASTIGS	OED glaidtig, 1925q
LASTAREH	(Kuh-e) Lastareh, Iran, 33°44, 51°15
ASTERINA	Asterina, Web2, under Asterinidae (starfish genus)
STENS DAL	Stensdal, Norway, 63°32, 9°36
TARSIIDA	perhaps misspelling for Tarsiidae, but see below*
IRIDITIS	OED
GENADISH	Genadish, Iran, 30°42, 56°11
SHALASHA	Shalasha, Sudan, 10°31, 26°41

*P. D. Jenkins, Catalogue of Primates in the British Museum (Natural History) and elsewhere in the British Isles, Part 4, Suborder Strepsirrhini, including the subfossil Madagascan lemurs and family Tarsiida. [British Museum (Natural History), London, 1987]

SEISSIES	Pa, plural of place in Ethiopia
GATNITSA	Gatnitsa, Russia, 54°36, 37°23
ASTINTAG	Astintag, China, 38°48, 89°12

SPILLET	OED spillet
PENLIGHT	OED
INNUFARA	In-Nufara, Malta, 36°02, 14°16
LLUNLLUN	(Cerro) Llunllun, Peru, -11°29, -76°34
LIFLEASE	OED lifeless 1, 1000q
EGALANTE	Egalante, Mozambique, -17°19, 37°36
THRUSTEN	OED thring A2, 1400q
STANEENS	Dict. of Newfoundland Eng, 2d ed, 1982 + 1990 sup
SHALLAHS	Pa, plural of family name
SENNENES	Sennenes, Norway, 70°21, 22°27
SENNES	Senennes, Belgium, 50°18, 4°53

GLUTTONS	OED glotton
LAURELIA	Laurelia novæ-zelandiæ, OED pukatea
OUTASITE	OED outasight
TRANSVAL	Transval, Brazil, -4°23, -39°11
TESSIERA	now known as Spermacoe, family Rubiaceae
OLIVETAN	Olivetán, OED
NITARASI	Nitar Asi, Bangladesh, 24°57, 90°28
SAELANIA	Saelania jamesii tauricum, ITIS plant
SISSIIS	siissii's, Pa, possessive of Tuvaluan verb
GATNITSA	Gatnitsa, Russia, 54°36, 37°23
ASTINTAG	Astintag, China, 38°48, 89°12

AMPUSSIS	Orthoporus ampussis nagurensis, ITIS animal
MIONHANA	Lago Mionhana, Mozambique, -26°41, 32°22
PONGUENE	Ponguene, Congo, Dem Rep, -4°12, 16°01
UNGARTER	OED
SHURRERY	Loch Shurrery, UK, 58°29, -3°38
SAETERMO	Saetermo, Norway, 69°16, 18°13
INNERMAN	inner man, OED man, 3b
SAERYONG	Saeryong-ni, North Korea, 41°09, 127°51
SNERRENS	Pa, Danish
AINARRAG	Ain Ar Rag, Western Sahara, 25°50, -13°17
GARRANIA	(Bir el) Garrania, Libya, 31°10, 15°04