

ROMAN WAYS

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Wordplay based on Roman Numeral Letters (RNLs) is not new to Word Ways. Here, however, I attempt an overview of the subject, as well as introducing a variety of new RNL wordplay. As a whole, RNL wordplay can be divided conveniently into 2 types: non-numerical and numerical. The RNLs in non-numerical wordplay do not take on their RN values; RNLs in numerical wordplay are given their RN values. CIVIC is an example of the former, a word made of RNLs which is also a palindrome. ACTIVE can be used as an example of the latter when viewed as containing the RN for 104 (CIV).

The RNLs used here are, in alphabetical order, C, D, I, L, M, V and X. Medieval Roman Numerals (WW87155 and 95183) are not admitted. A few hyphenated designations are offered where no solid words were found; phrases are not admitted.

Unreferenced words can be found in the Oxford English Dictionary, Second Edition. Locations are taken from the United States Board on Geographic Names and are populated places unless stated otherwise. Other references appear at the end.

NON-NUMERICAL RNL WORDPLAY

Non-numerical RNL wordplay can be sub-divided into:

- A. that in which the RNLs form part of the word
- B. that in which RNLs account for the entire word.

A. RNLS FORM PART OF THE WORD

1 Singularly Imperfect Romans (SIRs)

Only *a single letter* prevents certain words from being full RNL words. Here is a list of SIRs, not necessarily the longest ones. They encompass, in alphabetical order, one each of the 19 non-RNLs: CLIMAX, CLIMB, MIDDLE, FILMIC, VIGIL, CICHlid, JILDl (quick), CLICk, DICLINIC, CODICIL, LIMPID, IQLID (in Iran), IRIDIC, SILICIC, ILLICIT, MILIUM (millet), WILLI (type of nocturnal spirit), IDYLLIC, IZIM (a 17th century Hebrew word for goats - singular Ez).

A satirical columnist for *The (London) Times* newspaper and author of *The Calligrapher*, Edward DOCX has a most unusual SIR name.

2 Single Romans

By way of contrast, here is a selection of long words which contain *only a single RNL*. The first five can be found in Stedman's MD or are inferred from words therein.

ESOPHAGOGASTROSCOPES (20 letters), PHOTOROENTGENOGRAPHED (21), STEREOROENTGENOGRAPHING (23), TELEOROENTGENOGRAPHY (20), ESOPHAGOJEJUNOGASTROSTOMOSES (28), OVERBOUNTEOUSNESS (17 - Web2), EXTRANEOUSNESSES (16 - Web2)

3 Roman Strings

In Colloquy of the May 1999 issue of Word Ways, I offered ARMADILLIDIIDAE (pill bugs), a word with an uninterrupted string of 9 RNLs.

4 Roman Doubles

It is not difficult to find words which contain a doubled RNL and *no other RNLs*:

ACCOUNT, ADD, HAWAII, FULL, SUMMER, NAVY, WAXXEN (wax)

On the other hand, words with tripled and quadrupled RNLs and *no other RNLs* are rare:

IIIE (see skillet 1. 1519 citation), WALLLESS (Web2)

III (sleepless - Tahitian), HMMMM (ats), JXXX and AJJAXXX (WW2001294)

The following words have different pairings of adjacent doubled RNLs and *no other RNLs*.

IIDDA (Somalia)

QUASIILLNESS (Web2)

ANTI-IMMUNE

ALLCCANJA (Peru)

ROTTBOELLIINAE (gg)

Philip Cohen found the personal name REDDDLL in A.E. Vogt's *The Battle of Forever*, Ace, 1971 (81155).

5 Roman Repeats

Certain words contain a preponderance of one particular letter. Here, I search for *solid* words with as many of a particular RNL as possible but which contain *no other RNLs*.

C CHROOCOCCACEAE has 5 Cs

D DEUDDYDD (Welsh: 'two days') has 5 Ds

I INHIBITIONIST has 5 Is

L LLANLLYWEL (in Gwent, Wales) has 5 Ls

M MAMMOMONOGAMUS (a nematode worm - nz) has 5 Ms

V VERTVOVS (vertuous) has 3 Vs

X UXXARBAX (China) has 3 Xs

Some locations and tribes boast even more Roman repeats:

CHANCACACCACCA (a mountain in Peru) has 7 Cs (and a 10-letter C+A string)

WAPISIWISIBIWINIWAK ('Swan creek men', a band of Chippewa - Hod) has 8 Is

HULLLOOELLELL (either a Chinookan or a Salishan tribe - Hod) has 7 Ls.

NOVOVARVAROVKA (Russia) has 4 Vs.

6 Roman Beginnings and Endings

Words which begin and end with the same RNL are easy to find. However, when we require that the word contains *no other RNLs* it becomes difficult to find long words. Most of the longer words which begin and end with C, for example, end in -IC which disqualifies them.

COENOSARC

DESEGREGATED

INTERPRETARI

LAUGHTERFUL

MAGNETOGRAM

VENOV (venue)

XANTHONYX (a crustacean - nz)

VOROBJEV is the surname of the joint author of *Advanced Coal Mining*, 1961.

Certain words begin and end with a doubled RNL, either the same or different. Some of these words have extraneous RNLs.

Same doubled RNLs: CCAMPATUYOCC (Peru), CCARCCOLLACHAYOCC (a locality in Peru) has 3 x CC, an LL, and 7 Cs in total.

DDOFYDD (see 'ovate') IIII (sleepless - Tahitian) LLALL (Welsh: another) MMMM (rt)

Different doubled RNLs: LLANFAREDD (Powys, Wales) VVALL (enter 1590 cit = wall)

VVEDENSKII (alternate surname of Wedensky, Nikolai E. - Stedman's MD)

7 Invariant Romans

The RNLs in these words appear in their correct alphabetical positions within each word. They are invariants.

ENCOURAGINGLY, NECESSARIORUM

The RNLs in each of these words appear in their correct alphabetical positions *in relation to each other only*. They are local invariants.

ANECDOTARIAN

CONGENITAL

CRATERIFORM

COUNTERROLMENT

DAUNTINGLY

HYDROPHTHALMY

BIPALMATE

KALMASHBASHEVO

VEX

(Russia)

The RNLs in these words are reverse local invariants.

MARGINATED, HAMLETISH, PLENIPOTENCE, GLUTINATED, XAVANTE

8 Alphabetically-ordered Romans

The 5 different RNLs in each of these words occur in alphabetical order.

CARDIOPALMUS, CARDIO-OMENTOPEXY (both St), CHADILEUVU (stream-Argentina)
DIPLOMYSTAX (a fish)

The 5 different RNLs in each of these words occur in reverse alphabetical order.

EXEMPLARIC, OXALIDACEOUS, GOVERNMENTALIZED, MULTIDECK,
VENYMLICHE ('venomly')

9 Hidden Romans

Rearranged, the letters of these 10-letter parent words make two 5-letter offspring. One of these is a RNL word, the other contains no RNLs.

<u>DISSOLVING</u>	<u>SICCATIVES</u>	<u>VICARIANCE</u>	<u>CLAVIERIST</u>
/ \	/ \	/ \	/ \
LIVID SONGS	CIVIC TESSA	CIVIC ARENA	CIVIL STARE

In MERISMATIC and NUMISMATIC below, the letters of the RNL word MIMIC occur *in the correct order* in the parent word. In NONMIMETIC the letters of both offspring, MIMIC and the non-RNL NONET, appear in the correct order in the parent word. Alternatively, using TENON instead of NONET, the letters of MIMIC and TENON can be read forwards and backwards respectively.

<u>MERISMATIC</u>	<u>NUMISMATIC</u>	<u>NONMIMETIC</u>	<u>NONMIMETIC</u>
/ \	/ \	/ \	/ \
MIMIC STARE	MIMIC AUNTS	MIMIC NONET	MIMIC TENON
(in order)	(in order)	(both in order)	(in order) (rev. order)

In MILLENNIA, MILLI and ANNE can be read forwards and backwards respectively.

In ENMILDEN (enmingle) the RNL MILD occurs unbroken inside the tautonymic non-RNL ENEN (old word for 'can'). In several words, the letters of MILD occur in order but not in one group. In each of MATILDA, MARIGOLDS, MISLEAD and MISELDEN (old word for 'mistletoe'), MILD can be lifted to leave another offspring which does not include any RNLs.

M I L D	M I L D	M I L D	M I L D
A T A	A R G O S	S E A	S E E N

Other RNL offspring can similarly be lifted from DISTALLY, MITRALLY, MISDOING and LIVERIED. In MIASMIC and MIOOTHERMIC, MIMIC surrounds the non-RNL words AS and OTHER respectively.

DI LL	MI LL	MI D I	LIV I D
STA Y	TRA Y	S O NG	ER E
MI MIC		MI MIC	
AS		OTHER	

10 Half Roman

The letters in the first half of the word DIVISORS are RNLs, whilst those in its second half are not. Rearranging the letters of each half produces the RNL offspring VIDI and the non-RNL offspring ROSS. For more examples, see my *Straight Down The Middle* (2004125).

11 Roman Records

Under the title *Roman Numerology* (99059), Dave Morice listed potential records for various classes of word containing RNLs. In response to his EXTRAVEHICULAR (14), as the *Longest word with 5 different RNLs used once*, I offered EXTRAVENTRICULAR which has 16 letters (99104).

Here are more improvements:

Longest word with 6 different RNLs used once

LEVOCARDIOGRAM (14) from Stedman's MD - to replace HEXADECIMAL (11)

All 7 different RNLs used once

In the August 2003 Colloquy, I mentioned CERQUEX-DE-MAULEVRIER, a location in France - to replace Dave's coined OVERCLIMAXED

First and last names with greatest ratio of RNLs

In WW97055, Jed Martinez tells how he spotted the Roman name VIC VIDI, a resident of Coral Springs, on the local TV news - to replace IDI AMIN

Longest word with RNLs in odd positions only

MALACOCYCHLA (a bird 12 - nz) - to replace MOLECULE (8)

12 Silent Romans

RNLs are sometimes seen but not heard, as in these words:

C in MUSCLE, D in HANDSOME I in BUSINESS L in WALK M in MNEMONIC
V in FIVEPENCE (pronounced 'f') X in BILLET-DOUX

In RIEVAULX (Abbey), the I, L and X are all silent.

B. RNLs ACCOUNT FOR THE WHOLE WORD

There are only a few well-known words made exclusively of RNLs, especially of more than three letters: CIVIC, CIVIL, DILL, DIVI, LIVID, MIDI, MILD, MILL, MIMI, MIMIC, VILLI, VIVID.

1 Long Roman Words

For longer examples, it is necessary to turn to lesser-known words: CILDLIC (childly), CIMICIC (cimicic acid) and CIMICID (pertaining to insects of the Cimicidae - Dor). DIVIDIVI, with 8 letters, would appear to be the longest RNL word which has appeared in Word Ways. It is the name of a leguminous tree, and also the name of its pods, used in tanning and dyeing. I can now add eight more 8-letter RNL words, all locations. Five of these are tautonyms: DILIDILI (locality in Somalia), LIVILIVI (Bolivia), MIDI-MIDI (DR Congo), MILIMILI (Uganda), and VILIVILI (stream - Kenya); the remaining three are MILICICI (Bosnia-Herzegovina), and CIMCIMLI and XILMILLI (both in Azerbaijan). XILMILLI is also a Century word (assigning a=1, b=2 etc., its letter total = 100). However, there exist two 10-letter RNL tautonymic locations: LLIVILLIVI (a mountain in Chile) and XIMIM-XIMIM (Igarape Ximim-Ximim is a stream in Brazil).

2 Roman Transposals

Perhaps the most familiar of these is MID - DIM, which is also a reversal. Longer examples are found mostly amongst locations.

5 letters

These groups of 5-letter transposals each consist of three or more words.

CILMI (Somalia) - CIMIL (locality in Somalia) - MILIC (Bosnia-Herzegovina)

DIVIL - DIVLI (Afghanistan) - LIVID

DIVCI (Yugoslavia) - DIVIC (ridge in Yugoslavia) - VIDIC (Croatia)

LIVIL (Ginny Livil is a resident of California) - LIVLI (stream - Peru) - VILIL (Guatemala) -

VILLI (part of the small intestine; Villi Villi is a mountain in Bolivia)

DIDIM (stream - Cameroon) - IDMID (mt. - Lebanon) - IMDID (Timmay al Imdid - Egypt)

- MIDDI

CIVIL - CIVLI (Turkey) - VICLI (Vietnam) - VILCI (Vilci Izvor - Bulgaria) - VILIC

(Vilic Selo - Croatia)

DILDI (Ethiopia) - DILID - IDDIL (Nigeria) - IDLID (Admin. district - Syria) - LIDDI

(stream - Cameroon)

ILLIM (hill in Kenya) - IMLIL (Morocco) - LILIM (island in Papua NG) - LIMLI (Turkey) -

LLIMI (Llimi Kwan - wadi in Egypt) - MILLI

DILIM (Kirk Dilim Liman - bay in Turkey) - DILMI (Sidi Dilmi - shrine in Algeria) -
 DIMIL (stream - Papua NG) - DLIMI (El Bachir Dlimi - Morocco) - IDLIM (pond - Sudan) -
 LIMDI (India) - MIDIL - MILDI (Cameroon)

6 letters

Here are some pairs of 6-letter transposals.

CILCIM (Turkey) - MILCIC (Croatia)	CILICI (Bosnia-Herzegovina) - ILICIC
DIMICI (Yugoslavia) - IMIDIC	DIMILI (Turkey) - MILIDI (wadi - Algeria)
DIVICI - VIDICI (both Bosnia-Herzegovina)	ILLILI (Guinea) - LILLII (msp)
VILCII (wadi - Egypt) - VILICI (Yugoslavia)	VILIVI (stream - Mozambique) - VIVILI (Fiji)

The palindromic DIVVID (edd) transposes to the tautonymic VIDVID (Ukraine)

This group of 3 transposals consists of two tautonyms and a palindrome.

LIMLIM (wadi - Egypt) - MILMIL (stream - Ecuador) - MILLIM (F&W)

7 letters

DILIMLI (Turkey) - MIDILLI (island - Greece)

8 letters

LIVILIVI (Bolivia) - VILIVILI (stream - Kenya)

3 Roman Palindromes

6 letters

DIVVID (edd), ILIILI (a settlement in Samoa), IVIIVI ('small hills' - Mangareva),
 MILLIM (F&W), MIMMIM (a firm in Toronto)

7 letters

CILDLIC (childly); ILLILLI ('disease' - Choctaw), IMILIMI (a school in Kenya)

4 Roman Tautonyms

6 letters

DILDIL (Eritrea), LICLIC (spur - Peru), MVIMVI (stream - Gabon), LIMLIM (wadi - Egypt),
 MILMIL (stream - Ecuador) and VIDVID (Ukraine)

8 letters

DIVIDIVI, DILIDILI, LIVILIVI, MIDI-MIDI, MILIMILI, and VILIVILI. For these and the
 10-letter LLIVILLIVI and XIMIM-XIMIM see 'Long Roman Words' (1. above).

5 Roman Reversals

These RNL words make a different RNL word when read backwards. The sources of the
 asterisked* words can be found in the list of Miami words (6. below).

DILDI* - IDLID*	IDDIL (Nigeria) - LIDDI (stream - Cameroon)	ILLIL* - LILLI*
LIVID - DIVIL	MILLI - ILLIM (hill - Kenya)	
LIMLIM (wadi - Egypt) - MILMIL (stream - Ecuador)		

6 Roman Miami Words

A Miami word is one with the pattern 12?12, where ? can be any letter of the alphabet (see
Miami Words 2000014).

CICCI Bosnia-Herzegovina	CIVCI Bosnia-Herzegovina	DIDDI river - Nigeria
DILDI Ethiopia	IDLID Admin. Dist. - Syria	IDMID mountain-Lebanon
ILLIL cove - Palau	LICLI likely	LIMLI Turkey
LLILL old Welsh word for a goat	LILLI a girl's name	LIVLI stream - Peru
MIMMI stream - New Zealand	VIMVI farm - Zimbabwe	

7 Roman Triangle Words

The letters of the RNL words DIDDIM and ILICIC occur in the ratio 3:2:1. When arranged
 with like letters on the same row they make triangles.

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      M
     I  I
    D  D  D

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      L
     C  C
    I  I  I

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8 Roman Word Squares

The words of both the LIXI and MILLI squares below can be read in row order, from L to R, to produce a palindromic sequence of letters: LIXI XILI ILIX IXIL and MILLI ILLIL LLILL LILLI ILLIM respectively. Having an odd number of rows, the MILLI square also produces a palindromic letter sequence when rows 2 and 4 are read from R to L: MILLI LILLI LLILL ILLIL ILLIM. The VIDI square is not palindromic but it incorporates all the RNLs except C. Returning to the LIXI square, each word is composed of the letters I, I, L and X. Assigning $a=1$, $b=2$ etc., the letter total of each word divided by the number of letters $54/4 = 13.5$. Constructed of 4 balanced words, this a balanced square as well as a palindromic one.

L I X I (China)	M I L L I	V I D I
X I L I (Cape in Greece)	I L L I L	I X I L
I L I X (Ilex – oak)	L L I L L	D I V I
I X I L	L I L L I	I L I M (Nigeria)
	I L L I M	

9 Roman Pyramid

This RNL pyramid is constructed wholly from the names of locations.

M	M stream and M lagoon in Australia
M I	stream in Central African Republic
L I M	stream in Bosnia-Herzegovina
I M L I	railroad station in India
M I L I C	mountain in Hungary
C I L C I M	Turkey
M I L C I C I	Croatia
C I M C I M L I	Azerbaijan

10 Roman Word Ladder

This ladder of 6-letter locations has side branches (shown to the left of the main ladder):

	MILIMI	blowhole in Chad
	MILIDI	wadi in Algeria
Yugoslavia	MICICI	Italy
	CILICI	Bosnia-Herzegovina
	CIMICI	Bosnia-Herzegovina
	CICICI	Croatia
	VICICI	Croatia
	VIDICI	locality in Yugoslavia
stream in Mozambique	VILIVI	Bosnia-Herzegovina
creek in Papua NG	LILILI	Bosnia-Herzegovina
Brazil	XILILI	Bosnia-Herzegovina
	DIVICI	Romania
stream in Malawi	DIDIDI	Yugoslavia
	DIMICI	Bosnia-Herzegovina
	DIMILI	Turkey

11 Roman Shifts

By shifting the letters of certain words a given number of steps along the alphabet (wrapping round from Z to A), it is possible to convert words made with RNLs into *shift words which contain no RNLs*. The RNLs are given their alphabetical values ($C = 3$, $D = 4$ etc.).

$DID + 12 = PUP$ $MID + 12 = YUP$ $ILL + 19 = BEE$ $VIM + 18 = NAE$ (north 'no')

VIV + 6 = BOB/VIV + 12 = HUH/VIV + 18 = NAN

IXIL + 7 = PEPS

In WW99290, Dave Morice pointed out that "...the letters in THREE shift four steps along the alphabet to XLVII, the Roman numeral for 47. It's the only number that does this kind of shift..." (*a number to number shift*). This prompted me to try shifting groups of RNLs which are bona fide RNs rather than RNL words. The RNLs are given their alphabetical values.

MDV + 1 = NEW

DCL + 2 = FEN

MXV + 3 = PAY

MVI + 5 = RAN

LIV + 6 = ROB

CXXI + 7 = JEEP

LXXVI + 9 = UGGER

CDLI + 11 = NOWT

DCCV + 12 = POOH

MCL + 15 = BRA

CDI + 16 = STY

CXX + 17 = TOO

XCV + 18 = PUN

DLII + 19 = WEBB

CIX + 22 = YET

MDCC + 23 = JAZZ

DCCV + 24 = BAAT

The same length shift can be applied to different RNs to produce different words. For example, DCC + 24 = BAA, DCI + 24 = BAG whilst DCV + 24 = BAT.

In this context, a shift length of 22 seems to be particularly productive. Below, 3 letters are added, one at a time, and then 3 letters subtracted, again one at a time,

LI	+	22	=	HE
XLI	+	22	=	THE
XLII	+	22	=	THEE
XLVII	+	22	=	THREE
XVII	+	22	=	TREE
XII	+	22	=	TEE
XI	+	22	=	TE

The letters of some RNL words can be shifted along the alphabet and the resulting letters rearranged to form *shiftgrams which contain no RNLs*.

MIX + 7 (TPE) = PET/MIX + 18 (EAP) = PEA

DIMID + 23 (AFJFA) = JAFFA VIVID + 22 (REREZ) = REZER

CIVIL + 22 (YEREH) = HEYER (author Georgette Heyer)

NUMERICAL RNL WORDPLAY

The RNLs which appear below are given their RN values, either as single-letter RNs (I = 1, V = 5, X = 10, L = 50, C = 100, D = 500, M = 1000) or as multi-letter RNs (IV = 4, CLX = 660 etc.)

1 Orderly RNs

Each RNL in these words is treated as a *single-letter RN*, even when two or more occur adjacently. Each RN is greater in value than the RN which precedes it in the word:

LACKEYDOM, IVANXOUYLENG (mountain in Laos), XABAALCAD (wadi in Somalia), and EVREUX-LE-COUDRAY (France) which has 5 of the 7 single-letter RNs.

By way of contrast, the value of each RN in these words is less than that of the RN which precedes it. Each word has 5 of the 7 single-letter RNs:

MEGADACTYLIA (St), MACKELVIE, DECALVATION

2 Roman Numeral Transformations

This is the title of a Kickshaws item by Dave Morice which appeared in the August 1990 issue of Word Ways. In his words "Pick a Roman Numeral, any Roman Numeral, and replace the 'letters' by their positional values in the English alphabet. Add those values, and put the sum back into Roman Numeral form (e.g. VI = 22+9 = 31 = XXXI). Repeat the process until a previous sum appears". Beginning with a number between 1 and 100, Dave found that the longest sequence began with the number 77 and used sixteen different numbers in total before hitting on 30 for the second time:

77/LXXVII=100/C=3/III=27/XXVII=88/LXXXVIII=133/CXXXIII=102/CII=21/XXI=57/LVII=52/LII=30*/XXX=72/LXXII=78/LXXVIII=109/CIX=36/XXXVI=103/CIII (=30* for the second time). For more of Dave's item, see 90178.

3 Palindromic Roman Sandwiches

Replacing in the same way as above can be used to achieve a different end. Start off with the numerical palindrome 11. Convert it into a RN - XI. Now add the alphabetical values of X and I (24+9) and, bingo, another numerical palindrome (33) is the result! Here are more:

22 = XXII = 66	33 = XXXIII = 99	939 = CMXXXIX = 121
1001 = MI = 22	2002 = MMII = 44	2882 = MMDCCCLXXXII = 141
3003 = MMMIII = 66	4554 = MMMMDLIV = 99	5225 = MMMMMCCXXV = 141

4 Replacing RNs with non-RNLs

A single-letter, or multi-letter, RN in a word is replaced by one or more non-RNLs having a total alphabetical value (a=1, b=2 etc.) equal to value of the RN (I = 1, V = 5 etc.). The numbers show the values of the RNs.

Single-letter RN replaced by a single non-RNL

Only words which involve I (1 = A), V (5 = E) or X (10 = J) are eligible, because the RN values of L (50), C (100), D (500) and M (1000) each exceed 26.

1 IRE=ARE 5 VAT=EAT; SVEN=SEEN 10 SAX=SAJ (the Indian laurel)

Single-letter RN replaced by more than one non-RNL

This is not possible with the RN I (1) because it is represented only by the single letter A.

5 REV=REBAB (a plucked or bowed stringed instrument of Arabian origin)
10 RAX (racks)=RABH (f. rabbi) 50 LONER=SPOONER 100 COR=STRESSOR

Multi-letter RN replaced by a single non-RNL

Not possible with RNs III, IV or IX because they would have to be replaced by the other RNs C, D and I respectively (see 5. 'Replacing RNs with a single RNL')

2 HAWAII = HAWAB (mt. in Yemen) 6 VIEW = FEW
7 SHARVII (Bulgaria) = SHARG (Azerbaijan) 11 WAXIER = WAKER
14 BUXIVARA (India) = BUNARA (spring - Bosnia-Herzegovina)
15 BOX-VAN = BOOAN
16 BOXVIKE Vette (hill - Sweden) = BOPKE (hill - Zimbabwe)
19 AXIXA (Brazil) = ASA (King of Judah-Bible) 20 EXXON = ETON
21 OXXIN (Scots. 'oxxen') = OUN (own)

Multi-letter RN replaced by more than one non-RNL

2 BII (buy) = BAA	3 WAI'II (Papua NG)=WABA (Burma)
4 WAIVER = WABBER (Web2)	6 VIGER (vigour) = EAGER
7 SHARVII = SHAREB Mah (Iran)	9 SIX = SHA (a goat-deer)
11 XISTER (for scraping bones) = FESTER	12 XIIS (Somalia) = BEES
14 TXIVA (Angola) = TAGFA (Morocco)	15 BOX-VAN = BOHEBAN (stream - Ivory Coast)
16 SEXVIR (f. sexvirate, a body of six colleagues) = SEKER (sicker)	20 EXXON = EASON (a surname)
19 AXIXA (Brazil) = ABOBA (Cameroon)	21 OXXIN (Scots. 'oxxen') = OTAN (see Orang Otang 1802 cit.)
40 AXLE = ABRASE	
41 AXLIR (a hill in Iceland) = AUGHER (collop 1641 cit. - Siege of Augher)	
51 SLIT = SOUGHT	54 LIVER = POWER
56 PELVIS = PEANUTS	59 FELIX = FEASTS (Felix feasts!)
91 EXCITE = EROSTRATE (Botanical: not having a beak)	
110 WACXS (wax) = WATERWORKS	150 CLAN = UNPYTHAGOREAN
151 CLINE = THROUGH-STONE (a horizontal grave-stone over a tomb)	

Two replacements in the same word

1 + 5 KIRVE (to undercut a seam in coal-mining) = KAREE (a S. African tree)
6 + 50 VIAL = FAZES
10 + 50 AXEL = AJERUK (Uganda)

5 Replacing RNs with a single RNL

3 WAI'II (Papua NG) = WAC (woke) 4 WAIVE = WADE 9 TWIXT = TWIT

6 Roman Magic

In WW92051, Lee Sallows offered the following magic square made from number words. The sums of the numbers are the same (216) for each row, each column and the two diagonals. The sums of the RNs within the words are also the same (15) for each row, column and diagonal.

<u>SIXTY-TWO</u>	+	<u>EIGHTY</u>	+	<u>SEVENTY-FOUR</u>	=	216	<u>IX</u>	+	<u>I</u>	+	<u>V</u>	=	15
+		+		+			+		+				
<u>EIGHTY-FOUR</u>	+	<u>SEVENTY-TWO</u>	+	<u>SIXTY</u>	=	216	<u>I</u>	+	<u>V</u>	+	<u>IX</u>	=	15
+		+		+			+		+				
<u>SEVENTY</u>	+	<u>SIXTY-FOUR</u>	+	<u>EIGHTY-TWO</u>	=	216	<u>V</u>	+	<u>IX</u>	+	<u>I</u>	=	15
=		=		=			=		=				
216		216		216			15		15		15		

Again in 92051, Dave Morice pointed out that, not only do the consecutive numbers FIVE, SIX and SEVEN add to 18, but the RNs contained within them also add to 18 (IV + IX + V). No other sequence of consecutive numbers does this but Dave found a non-consecutive example: ELEVEN + SEVENTEEN + THIRTY-THREE = 61 both ways (LV + V + I).

I found TWELVE + SEVENTEEN + THIRTY-TWO which also = 61 both ways, and four examples which use the minus sign, each = 8 both ways.

SIXTEEN - EIGHT SIXTY - FIFTY-TWO SIXTY-ONE - FIFTY-THREE
SIXTY-TWO - FIFTY-FOUR

These two examples, which also use the minus sign, each = 3 both ways.

EIGHTY-SEVEN - EIGHTY-FOUR NINETY-SEVEN - NINETY-FOUR

7 Roman Millennium

In *The Roman Centurion* (91182), Dave Morice mined Webster's Second Edition to find words which embody the one hundred Roman Numerals from 1 (I) to 100 (C). The fifty words he offered do not contain any extraneous RNLs. For reference, here is Dave's list:

1 <u>IT</u>	2 <u>IBIS</u>	3 <u>INHIBIT</u>	4 <u>GIVE</u>	5 <u>EVE</u>
6 <u>VINE</u>	7 <u>VITRIFY</u>	8 <u>VITIATION</u>	9 <u>NIX</u>	10 <u>OX</u>
11 <u>EXIT</u>	12 <u>EXIGUITY</u>	13 <u>EXHIBITION</u>	14 <u>EXPENSIVE</u>	15 <u>EXTROVERT</u>
16 <u>EXUVIATE</u>	17 <u>EXUVIATION</u>	19 <u>EXTISPEX</u>	20 <u>EXONARTHEX</u>	21 <u>EXOTOXIN</u>
40 <u>AXLE</u>	41 <u>EXPLOSION</u>	42 <u>EXPLOITATION</u>	44 <u>EXPLETIVE</u>	45 <u>EXOLVE</u>
46 <u>EXOLVING</u>	49 <u>SILK*</u>	50 <u>LAB</u>	51 <u>LIP</u>	52 <u>LIAISON</u>
53 <u>LITIGATION</u>	54 <u>LIVE</u>	55 <u>LOVE</u>	56 <u>LEVITY</u>	57 <u>LEVINING</u>
58 <u>LOVE-INSPIRING</u>	59 <u>HELIX</u>	60 <u>LOX</u>	61 <u>LUXATION</u>	62 <u>LUXURIATION</u>
64 <u>LUXIVE</u>	90 <u>EXCEPT</u>	91 <u>EXCITE</u>	92 <u>EXCIPIENT</u>	94 <u>EXCESSIVE</u>
95 <u>EXCURVATE</u>	96 <u>EXCAVATION</u>	97 <u>EXCAVATIONIST</u>	99 <u>HICK*</u>	100 <u>CAB</u>

The words SILK and HICK (above*) use IL for 49 and IC for 99 whereas these values should be represented by XLIX and XCIX (see below).

By exploring beyond Webster's Second, I managed to fill 12 of the 50+2 gaps:

22 <u>XUXIAOWEI</u> (China)	27 <u>XAXAVITI</u> (mt.-S.Africa)	30 <u>XAAXKAX</u> (Mexico)
43 <u>TEXTLINGUISTIK</u>	49 <u>EXPLETRIX</u>	63 <u>LGAXETGITINAI</u> (Hod)
65 <u>LEXVA</u> (Hod)	66 <u>LAXVIKEN</u> (Sweden)	69 <u>LUXURIEUX</u>
70 <u>LEXXUNA</u>	93 <u>EXCURSIONIZING</u>	99 <u>EXECUTRIX</u>
(Ta' Lexxuna - a locality in Malta)		

Extending this exercise, I searched for words embodying the RN values 101 (CI) to 1000 (M).

101 <u>CHIP</u>	102 <u>PACIFIST</u>	103 <u>ACQUISITION</u>
104 <u>CARNIVORE</u>	105 <u>SCURVY</u>	106 <u>CAVITY</u>
107 <u>CHAUVINIST</u>	108 <u>CONVERSATIONIZING</u>	109 <u>CONFIX</u>
110 <u>COX</u>	111 <u>COAXING</u>	112 <u>COEXISTING</u>
114 <u>CONNEXIVE</u>	115 <u>CUXHAVEN</u>	116 <u>CESNY-AUX-VIGNES</u> (France)

- | | | |
|--|--|---|
| 119 <u>CAXANIX</u> (Hod) | 120 <u>COXXS</u> | 121 <u>CAXUXI</u> (Mexico) |
| 140 <u>CAXALA</u> (Angola) | 141 <u>TCEXULIN</u> (Hod) | 145 <u>CHAUX-LEZ-PASSAVANT</u> (France) |
| 150 <u>CALF</u> | 151 <u>NUCLEI</u> | 152 <u>CLIPPING</u> |
| 153 <u>COALITIONING</u> | 154 <u>CULTIVATE</u> | 155 <u>ENCLAVE</u> |
| 156 <u>CLEAVING</u> | 157 <u>CALVINIST</u> | 158 <u>CALVINIZING</u> |
| 159 <u>SPECULATRIX</u> | 160 <u>SCOLEX</u> | 161 <u>CATALEXIS</u> |
| 190 <u>CO-EXECUTOR</u> | 191 <u>COXSACKIE</u> | 196 <u>RESCUE-EXCAVATIONS</u> |
| 199 <u>CO-EXECUTRIX</u> | 200 <u>CUCKOO</u> | |
| 201 <u>ACACIA</u> | 202 <u>ZUCCHINI</u> | 203 <u>CONSCRIPTIONIST</u> |
| 204 <u>CONCEIVE</u> | 205 <u>CONCAVE</u> | 206 <u>CONCAVITY</u> |
| 207 <u>CONCAVITIES</u> | 209 <u>CORRECTRIX</u> | 210 <u>CACHEXY</u> |
| 211 <u>CACOXENITE</u> | 212 <u>SACROCOXITIS</u> (Dor) | 240 <u>COCARBOXYLASE</u> |
| 241 <u>SACROCOXALGIA</u> (Dor) | 250 <u>ACCELERATE</u> | 251 <u>OCCLUSION</u> |
| 252 <u>CYCLIZINE</u> | 254 <u>OCCLUSIVE</u> | 255 <u>CONCLAVE</u> |
| 256 <u>CONCLAVIST</u> | 257 <u>CRYPTOCALVINIST</u> | 259 <u>BUCCALATRIX</u> |
| 260 <u>CYCLOHEXANE</u> | 261 <u>CYCLOHEXATRIENES</u> | 290 <u>COCOAXCO</u> (Mexico) |
| 300 <u>COCKROACH</u> | | |
| 301 <u>COCCI</u> | 302 <u>COCCININ</u> | 303 <u>COCTOPRECIPITIN</u> (Web2) |
| 304 <u>CONCOCTIVE</u> | 305 <u>CRECY-COUVE</u> (France) | 306 <u>CACCAJAV'RI</u> (lake-Norway) |
| 309 <u>COCCIX</u> | 310 <u>COCCYX</u> | 340 <u>CHACHACUAXTLE</u> (Mexico) |
| 350 <u>COCCAL</u> | 351 <u>COCCOLITE</u> | 352 <u>COCA-COLONIZATION</u> |
| 400 <u>CAD</u> | | |
| 401 <u>CREDIT</u> | 402 <u>CONDITION</u> | 403 <u>CONDITIONING</u> |
| 404 <u>SCREWDRIVER</u> | 405 <u>CADAVER</u> | 406 <u>CADAVERIZE</u> |
| 407 <u>CADAVERIZING</u> | 409 <u>COADJUTRIX</u> | 410 <u>CARDEX</u> |
| 411 <u>ARCHRODEXTRIN</u> | 420 <u>CADOXTON-JUXTA-NEATH</u> (a Welsh village) | |
| 450 <u>CREDULOUS</u> | 451 <u>CHANDELIER</u> | 452 <u>SCANDALISING</u> |
| 454 <u>COD-LIVER</u> | 455 <u>ZRCADLOVA</u> (Zrcadlova Hut' - Czechoslovakia) | |
| 456 <u>CHUYDELEYEVSKIY</u> (Russia) | | 459 <u>CHADALEIX</u> (France) |
| 460 <u>CANDLEWAX</u> | 461 <u>CANDLEWAXING</u> | 500 <u>WORD</u> |
| | | |
| 501 <u>ADHESION</u> | 502 <u>DEFINITE</u> | 503 <u>DIGITIZE</u> |
| 504 <u>ADOPTIVE</u> | 505 <u>ADVENT</u> | 506 <u>ADVISE</u> |
| 507 <u>ADVISING</u> | 508 <u>DEVIATIONIST</u> | 509 <u>ADJUTRIX</u> |
| 510 <u>DESEX</u> | 511 <u>DEOXYGENATION</u> | 512 <u>DEOXYGENISING</u> |
| 513 <u>DEXTROPOSITIONING</u> | 515 <u>HYDROXYNERVONE</u> (St) | 516 <u>DEOXYVIRUS</u> (St) |
| 519 <u>DEXTROSTIX</u> | 520 <u>ADNEXOPEXY</u> | 521 <u>DEXTROTHYROXINE</u> |
| 540 <u>DEXTRAL</u> | 541 <u>DEXTRALISE</u> | 542 <u>DESEXUALISATION</u> |
| 545 <u>HYDROXYPHENYLPYRUVATE</u> (Dor) | | 550 <u>YODEL</u> |
| 551 <u>ADRENALIN</u> | 552 <u>BOWDLERIZING</u> | 553 <u>DELATINIZATION</u> |
| 554 <u>DELIVER</u> | 555 <u>DELVE</u> | 556 <u>DELUVIAN</u> |
| 557 <u>DELVINAKION</u> | 559 <u>SPONDULIX</u> | 560 <u>QUADRUPLEX</u> |
| 561 <u>DEFLEXION</u> | 562 <u>DEFLEXIONIZE</u> | 563 <u>DEFLEXIONIZATION</u> |
| 564 <u>DEFLUXIVE</u> | 590 <u>DEOXYCORTONE</u> | 591 <u>DE-EXCITE</u> |
| 592 <u>DE-EXCITATION</u> | 595 <u>DEEP-EXTRA-COVER</u> | 600 <u>DUCT</u> |
| 601 <u>ABDUCTION</u> | 602 <u>DECISION</u> | 603 <u>DESCRIPTIONIST</u> |
| 604 <u>ADJECTIVE</u> | 605 <u>UNDERCOVER</u> | 606 <u>DECURVATION</u> |
| 607 <u>ZEDA-CHKVISHI</u> (Georgia) | | 609 <u>DOCTRIX</u> |
| 610 <u>ENDOCORTEX</u> | 611 <u>HARDECOURT-AUX-BOIS</u> (France) | |
| 640 <u>DECARBOXYLASE</u> | 641 <u>DECONTEXTUALISE</u> | 642 <u>DECARBOXYLIZATION</u> |
| 650 <u>DACTYL</u> | 651 <u>DECENTRALISE</u> | 652 <u>DECLASSIFIES</u> |
| 653 <u>DECENTRALISATIONIST</u> | 654 <u>DECLARATIVE</u> | 655 <u>DECALVANT</u> |

656 <u>DECALVATION</u>	657 <u>DECALVINIZE</u>	658 <u>DECALVINIZATION</u>
659 <u>DECLINAX</u>	660 <u>HYDROCALYX</u>	662 <u>DUCLOUXII</u> (a plant variety)
700 <u>DECOCT</u>		
701 <u>DECOCTION</u>	702 <u>DECAPACITATION</u>	703 <u>DACRYOSCINTIGRAPHING</u> (St)
704 <u>DECONSTRUCTIVE</u>	705 <u>DUCHCOV</u> (Czechosl.)	707 <u>DECCA</u> <u>VISION</u>
709 <u>ARRENTES-DE-CORCIEUX</u> (France)		711 <u>HYDROCACHEXIA</u>
750 <u>DRACUNCULAR</u>	751 <u>HYDROCYCLIST</u>	752 <u>DRACUNCULIASIS</u>
800 <u>DECRESCENCE</u>		
801 <u>DYSCRECCION</u>	850 <u>DECACYCLE</u>	900 <u>SCAMP</u>
901 <u>COMBINE</u>	902 <u>CHAMPIONSHIP</u>	903 <u>COMPANIONIZING</u>
904 <u>COMBATIVE</u>	905 <u>COUNTERMOVE</u>	906 <u>CENTUMVIRATE</u>
907 <u>CENTUMVIRI</u>	909 <u>CHAMOIX</u>	910 <u>CHEMOTAXES</u>
911 <u>CHEMOTAXIS</u>	920 <u>CAMAXAXE</u>	940 <u>CHROMOXYLOGRAPH</u>
941 <u>CHEMEXFOLIATE</u>	942 <u>CHEMEXFOLIATION</u>	950 <u>CAMEL</u>
951 <u>CARAMELISE</u>	952 <u>CARAMELISING</u>	953 <u>COSMOPOLITANIZATION</u>
954 <u>COMPULSIVE</u>	955 <u>CHAMPLEVE</u>	956 <u>CYTOMEGALOVIRUS</u> (St)
957 <u>CYTOMEGALOVIRIA</u> (Dor)		959 <u>CONTEMPLATRIX</u>
960 <u>COMPLEX</u>	961 <u>COMPLEXITY</u>	962 <u>COMPLEXIFIES</u>
964 <u>COMPLEXIVE</u>	1000 <u>ME</u>	

ROMAN REMAINS

It only remains for me to remind readers that 666, the Number of the Beast is represented by six of the seven different RNs in descending order of their RN values - DCLXVI.

The year 1666, on the other hand, uses all seven RNs, once, again in descending value order - MDCLXVI.

Finally, the initial RN in the word CENTURY describes the whole word, making the rest of the word redundant; and I have it on good authority that the plant DILL has been seen growing over here in the nooks and crannies of HADRIANS WALL.

FURTHER READING

Topics which I have not covered include Chronograms (77214, 82143 and a variety of non-WW sources), Presidential Roman Numerals (2003141), Roman Windows (2003141, 2003221), 9-11 in Roman Numerals (2003138), Roman Numeral Cars (2000163), Romantic Squares (2003297).

NON-OED REFERENCES

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Dor = Dorland's Medical Dictionary

edd = English Dialect Dictionary

F&W = Funk & Wagnall

gg = Genera Graminum (Grasses of the World) by W.D. Clayton & S.A. Penvoize

Hod = Handbook of American Indians, edited by F.W. Hodge, 1907

msp = A World List of Mammalian Species by G.B. Corbet & J.E. Hill, 1991

nz = Nomenclator Zoologicus

rt = Roget's Thesaurus

St = Stedman's Medical Dictionary

Web2 = Webster's Second Edition