Naming the Numbers

The field of recreational linguistics is full of unsolved problems. The purpose of this article is to acquaint readers with one such problem, in the hope that someone will be inspired to work out a solution to it.

Large numbers have names. A "1" followed by three zeroes is called a "thousand"; followed by six zeroes, it is called a "million"; and so on. If we consult the dictionary, we find the following set of number names in existence:

Zeroes	*Number*	*Zeroes*	*Number*
3	thousand	36	undecillion
6	million	39	duodecillion
9	billion	42	tredecillion
12	trillion	45	quattuordecillion
15	quadrillion	48	quindecillion
18	quintillion	51	sexdecillion
21	sextillion	54	septendecillion
24	septillion	57	octodecillion
27	octillion	60	novemdecillion
30	nonillion	63	vigintillion
33	decillion	303	centillion

Further the dictionary saith not.

Aside from the spicy character of some of the names (SEXtillion, SEXdecillion), the list raises two obvious questions:

(1) What are the names of the numbers between the "vigintillion" and the "centillion"?

(2) What are the names of numbers larger than the "centillion"?

Since no dictionary chooses to enlighten us on this score, we have ransacked mathematical literature in search of the missing number names. The only material on the subject to turn up has been in *The Philosophy of Arithmetic* by Edward Brooks, published in 1904. In the appendix to that book, there is quoted a list of number names formulated by a Professor Henkle. Up to and including

the "duodecillion," Henkle's names coincide with those in the list given above. Henkle's continuation, at variance with the foregoing list, follows:

Zeroes	*Number*	*Zeroes*	*Number*
42	tertio-decillion	2703	nongentillion
45	quarto-decillion	3003	millillion
48	quinto-decillion	3303	centesimo-millillion
51	sexto-decillion	3603	ducentesimo-millillion
54	septimo-decillion	3903	trecentesimo-millillion
57	octo-decillion	4203	quadringentesimo-millillion
60	nono-decillion	4503	quingentesimo-millillion
63	vigillion	4803	sexcentesimo-millillion
66	primo-vigillion	5103	septingentesimo-millillion
69	secundo-vigillion	5403	octingentesimo-millillion
72	tertio-vigillion	5703	nongentesimo-millillion
75	quarto-vigillion	6003	bi-millillion
78	quinto-vigillion	9003	tri-millillion
81	sexto-vigillion	12,003	quadri-millillion
84	septo-vigillion	15,003	quinqui-millillion
87	octo-vigillion	18,003	sexi-millillion
90	nono-vigillion	21,003	septi-millillion
93	trigillion	24,003	octi-millillion
123	quadragillion	27,003	novi-millillion
153	quinquagillion	30,003	deci-millillion
183	sexagillion	33,003	undeci-millillion
213	septuagillion	36,003	duodeci-millillion
243	octogillion	39,003	tredeci-millillion
273	nonagillion	42,003	quatuordeci-millillion
303	centillion	45,003	quindeci-millillion
306	primo-centillion	48,003	sexdeci-millillion
333	decimo-centillion	51,003	septi-deci-millillion
336	undecimo-centillion	54,003	octi-deci-millillion
339	duodecimo-centillion	57,003	novi-deci-millillion
342	tertio-decimo-centillion	60,003	vici-millillion
345	quarto-decimo-centillion	63,003	semeli-vici-millillion
363	vigesimo-centillion	66,003	bi-vici-millillion
366	primo-vigesimo-centillion	69,003	tri-vici-millillion
393	trigesimo-centillion	72,003	quadri-vici-millillion
423	quadragesimo-centillion	75,003	quinqui-vici-millillion
453	quinquagesimo-centillion	78,003	sexi-vici-millillion
483	sexagesimo-centillion	81,003	septi-vici-millillion
513	septuagesimo-centillion	84,003	octi-vici-millillion
543	octogesimo-centillion	87,003	novi-vici-millillion
573	nonagesimo-centillion	90,003	trici-millillion
603	ducentillion	120,003	quadragi-millillion
903	trecentillion	150,003	quinquagi-millillion
1203	quadringentillion	180,003	sexagi-millillion
1503	quingentillion	210,003	septuagi-millillion
1803	sexcentillion	240,003	octogi-millillion
2103	septingentillion	270,003	nonagi-millillion
2403	octingentillion	300,003	centi-millillion

Zeroes	*Number*	*Zeroes*	*Number*
303,003	semeli-centi-millillion	1,800,003	sexcenti-millillion
306,003	bi-centi-millillion	2,100,003	septingenti-millillion
600,003	ducenti-millillion	2,400,003	octingenti-millillion
900,003	trecenti-millillion	2,700,003	nongenti-millillion
1,200,003	quadringenti-millillion	3,000,003	milli-millillion
1,500,003	quingenti-millillion		

In the preceding table, word elements ending in "O" represent numbers to be added, while those ending in "I" represent multipliers. When two word elements end in "I," the sum of the numbers indicated is to be taken as the multiplier. In each, the last word element indicates the number to be increased or multiplied. The names of intermediate numbers, omitted from the preceding table, are to be formed by analogy to those names in the table.

Much as we would like to accept the list of number names as authoritative, we cannot do so, for it does not live up to the standards to which one expects it to adhere. Neither, for that matter, does the dictionary list given first.

With one exception, all of the number names end with the suffix -ILLION. The name "thousand" does not. Exceptions are intolerable. The name could be changed to something like "thusillion."

An examination of the further reaches of these lists makes it painfully clear that 1,000 should be called "million," 1,000,000 should be called "billion," etc. Only by shifting all of the number names backward one space can we avoid the ridiculous "3" with which the numbers of digits in the major numbers named end.

Allegedly, the names of the numbers are derived from the Latin names for small numbers. However, the derivation of the successive names from Latin is full of inconsistencies, beginning with "million" itself. If the names are derived from the Latin cardinals, they should start out as follows: UNILLION, DUILLION, TRILLION, QUATTILLION, QUINQUILLION, SEXILLION, etc. If the derivation is from the Latin ordinals, the names should begin: PRIMILLION, SECUNDILLION, TERTILLION, QUARTILLION, QUINTILLION, SEXTILLION, etc. The existing number names are a hodgepodge without any consistency. This makes it impossible to extend the system of names in an entirely consistent fashion.

Latin itself is inconsistent. Thus, the word for "eighteen" is either OCTODECIM or DUODEVIGINTI, and the word for "nineteen" is either NOVENDECIM or UNDEVIGINTI. In each case, the second word was the one more commonly used, and many Latin textbooks don't even list the first word. Which set of names shall we use for constructing a system of number names?

At points, Henkle introduces the name element SEMELI, derived from the Latin "semel," meaning "once." The word is neither a cardinal nor an ordinal. In spirit, it belongs to a third category of Latin number names, the distributives, although the regular distributive term for "once" is SINGULI, not SEMEL. What are we going to do about that?

Latin for 7 is SEPTEM, for 17 is SEPTENDECIM. How do we achieve uniformity: by always using SEPTEM, or by always using SEPTEN, or by trying to make some distinction, sometimes using one, sometimes the other?

Anyone who attempts to fill in the intermediate names omitted from Henkle's table will soon run into difficulties. One difficulty is that some of the intermediate names are so long as to be unwieldy. The only way of overcoming that difficulty is to introduce additional sets of prefixes into the nomenclature. For instance, the word MILLILLION is difficult to pronounce. It could be replaced by the easier and shorter word MEGILLION, using a Greek prefix. By introducing the Latin distributives, and Greek and Sanskrit prefixes, the intermediate number names could be streamlined.

A related difficulty is trying to avoid ambiguity. If we try to eliminate the defects in Henkle's nomenclature, it is very easy to run into situations where the same word appears in two different places, with two different meanings. Thus, we could discover that SEXCENTILLION is a name both for the number that uses 321 zeroes, and for the number that uses 1,803 zeroes. Avoiding such ambiguities is a difficult problem, not always foreseeable.

Henkle's number names are full of hyphens. Esthetically, a hyphen is a mar in the verbal landscape. Can't most or all of the hyphens be eliminated?

The name for "1803," SEXCENTILLION, is inconsistent with the names preceding and following it. Should it not be changed to SEXINGENTILLION?

This has been a sampling of the problems encountered by anyone who attempts to formulate a wholly rational system of number names. So far, no one has succeeded. The challenge remains. . . .

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THE RIVERS OF CEYLON

The letter A, in its role as the first letter of our alphabet, carries a degree of primacy and authority unmatched by any other letter. One of the various functions assigned to it is to give structure to an entire class of words, by occupying each second position, with every other position filled by consonants. Examples of "4A" words of this nature include CATAMARAN, MAHARAJAH, and PARABASAL. There is even a "5A" word, TACAMAHACA (the name of an aromatic oleoresin). That, however, appears to be the limit. It is with a considerable feeling of pride, consequently, that we point to the island of Ceylon. At least three of Ceylon's rivers own "6A" names: ALAPALAWALA, MAGALAVATAVAN, and MAHAKADAWALA.

Can you duplicate Ceylon's achievement with any other words or names?

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GEOGRAPHIC DISPLACEMENTS

Surveyors of the geographic scene have discovered a grotesque anachorism (yes, anachorism, *not* anachronism) in Alaska. What they have found is that the HULAHULA RIVER, which clearly belongs in Hawaii, is actually in Alaska, in the extreme northeast of that state, in the vicinity of the village of Kaktovik (Barter Island). Even worse, the town of HONOLULU turns up in south-central Alaska.

What, in your opinion, are we to do to rectify this monstrous error on the part of Nature? Hmmm?