

# ON BABBAGE AND BABBLING

ENOCH HAGA  
Livermore, California

Here are a few random thoughts and comments for the logologist. As a retired mathematics teacher, it's been my experience that people interested in recreational mathematics are also interested in recreational linguistics.

Take Charles Babbage, who, among his many mathematical, scientific and technological contributions, must be credited with the invention of the digital computer. Babbage had a recreational interest in a great many topics, as becomes evident to anyone reading his autobiography (Passages From the Life of a Philosopher, New York: Augustus M. Kelley, Publishers, 1969 reprint of 1864 edition). Chapter XVIII, "Picking Locks and Deciphering," is of special interest. This was earlier reprinted in Charles Babbage and his Calculating Engines (New York: Dover Publications, 1961).

Beginning on page 238 (page 105 in Dover), Babbage talks about a "good English dictionary" (no name given) that he had had copied into 24 other dictionaries, which consisted of words arranged by word length. Then modifications of each word (plurals, past tenses, etc.) were added, resulting in a total of 26 dictionaries.

In these dictionaries, words containing two or more of the same letter were numerically marked. For example, **better** was followed by 25,34, indicating that the second and fifth, and the third and fourth letters, are identical. (Jack Levine adopted the same system in his pattern word lists more than a century later.)

These dictionaries were then rearranged alphabetically according to the initial letter of words, and again, according to the second letter of each word, and so on to the third, fourth, etc. This was not all. He further subdivided these dictionaries into several others, according to their numerical characteristics.

Babbage says "There are some verbal puzzles costing much time to solve which may be readily detected by these dictionaries. Such, for instance, is the sentence I TORE TEN PERSIAN MSS., which it is required to form into a word of eighteen letters." After explaining his method (page 240), Babbage solves with MISREPRESENTATIONS, and proposes another problem, ART IS NOT IN, BUT SATAN. (The solution is TRANSUBSTANTIATION.)

Babbage goes on to mention that squaring words can be solved with his dictionaries, which he calls "unfinished", but amounting

to "nearly half a million words" (page 239). He says that it is believed, on unknown authority, that no one has yet succeeded in squaring the word BISHOP. He mentions another kind of word square in which the diagonals also form words. (I propose that a form of word square in which only the box shape, with diagonals, are used be called **zig-zags**.)

Now for the babbling. A fellow-teacher in my school was known as a babbler. This proclivity eventually resulted in a classroom smoke-bombing, as well as a notorious and precedent-setting legal case against the bombers. Obviously, babbling has a down side.

Since I'm now retired, I can now say that I have myself engaged in a studied form of babbling in order to engage the interest of my students in **anything** so that I could get along with trying to teach them **something**. Many teachers develop these song-and-dance acts, so that babbling must have an up side as well.

Say that the subject under discussion is palindromic numbers, exemplified by the prime 313. I may babble on, commenting that it is Donald Duck's license number, and then going on to note that my favorite palindrome is WOW (or MOM) because it is legible forward, backward, upside down, or in the mirror. This wakes up the class.

Other entertaining preambles to instruction include words that sound like letters: QUEUE, TEA, TEE, YOU, EWE, BEE, SEA, GEE, EYE, AYE, JAY, KAY, EL, OH, PEA, PEE, ARE, EX, WHY, ZEE. Or non-numerical words that make numbers: ATE, WON, TO, TOO, FOR, FORE, SICKS.

The latter word reminds me that students can also be entertained by making up words to stand for numbers: SICKS for 6, DOUGHNUTS for 12, SHOE for 2 (because there are a pair), and so on into a long rainy afternoon. They get a further kick out of subsequently making actual use of these words in their papers.

For extended discussion, should today's algebra not prove of much interest, some students are glad to know that they can baffle their less-astute English teachers with gems selected from sentences that can be spoken but not written (without cheating, which can itself be either numeric or non-numeric):

There are three (to, too, two)'s in the English language  
 There are three (for, fore, four)'s in the English language  
 There are two (their's, there's) in the English language

and so on.

Babbage calls these puns, which he dislikes, and illustrates with an example in his book (page 364), but they do strike to the heart of linguistic logic.

Hearing an irritating phrase on TV - again - the other night, I was struck with the thought that I could use a phrase three successive times in a sentence:

"Needless to say" is, needless to say, needless to say

More fodder for bored students!

I see in Joel Achenbach's column "Why Things Are" that he's proposed **prestidigitation** as the successor to **dialing the number**. I prefer the simpler **punch**, as in **punching the number**. Babbling on, this reminds me of Sid Wright, a fellow engineering writer at Lockheed Missiles & Space back in the 1960s. He proposed **help** as the most useless word in the English language. I think he hit it right on. Sid also came up with the idea of a weird-word dictionary, a kind of compendium of the exotic and esoteric. (This has since been done, in Josefa Heifetz Byrne's Mrs. Byrne's Dictionary, published by University Books in 1974.)

Speaking of the 1960s, that was the time I was a reviewer for Computing Reviews. Being faced with many new acronyms, especially names of computer languages, I proposed that capital letters be reserved strictly for those which were not pronounceable, such as RPG, or for those which were pronounceable but which already stood for other English words: hence BASIC, but Fortran or Cobol.

For a final babble, I'll repeat the tale told by John Kenneth Galbraith in Chapter 3 of his 1990 novel A Tenured Professor. It seems that Harvard had decided to name its residence halls after former Harvard University presidents. This idea worked fine until they came to Dr. Leonard Hoar, president in 1672. Hoar House may look fine in print, but just try telling your Wellesley date where you live!

### **MORE DNA LINGUISTICS**

*In the February 1992 **Word Ways**, Anthony Sebastian facetiously suggested that the amino-acid sequences that underlie proteins contain coded messages. Recently, Michael Ravnitsky sent the editor a photocopy of an essay by John Maynard Smith in the anthology The Scientist Speculates (Basic Books, New York). In it, Smith conjectures that mutations of the DNA base sequence of a protein can, perhaps, only take place as a succession of single-step changes, analogous to those in a word ladder like word-wore-gore-gone-gene (or do proteins also mutate by single-step insertions and deletions, like an-ban-bran-brain-rain-ran-rang?). Just as there are islands of words that can't be reached from the main network, so there may be proteins which cannot be evolutionarily realized by a given organism. Perhaps some of these proteins would be valuable; can geneticists devise ways to rescind the conventional rules of mutability, and help the organism access them?*