Numbers Just Keep Getting Bigger (and Smaller)

The numbers don't keep getting bigger (or smaller)—there is, after all, an infinity of them, both large and little. It's just the way that we talk about them that gets bigger.

Remember learning to count? I remember being somewhat confused with eleven. For me at first, one to ten was pretty much of a snap. But after that . . .? I still get a little confused about what comes after ten when I am thinking in Spanish, or modern Greek. (Spanish has separate words for "eleven" to "fifteen" before it switches to "ten-and-six", "ten-and-seven", etc. while modern Greek switches at "ten-and-three".)

And then there was a million!

For a while, that was the biggest number I needed. "There's gotta be a million fireflies out there!" And then came billions, which I don't think I ever heard of before the Vietnam War. And as the nation's deficit grew, so did our numbering system. Now I daily see "trillions".

And as the number of stars we can see in the galaxies of the universe has grown, I've become accustomed to exponentials. I had grown up with the silly "googol", and the even sillier "googolplex", and now numbers like 10^{23} have meaning to me.

But something seems to be going wrong when we get to "quadrillion." The international numbering system goes on an "illion" spree, with ridiculous "octodecillion" ($1X10^{57}$) and "unvingintillion" ($1X10^{66}$) and the like. But we don't really need to talk about 10^{57} or 10^{66} , at least not yet. And the international experts keeping track of large numbers seems to be keeping googol (10^{100}) as well as the mysterious Skewes' Number ($=1.397 X 10^{316}$?). And then there are the mind-bogglingly large Graham's Number and TREE(3) that are so huge that your mind would explode if you tried to imagine how many decimal places they contained.

But now that we are peering into the smallest units of quantum space and our computers are working at lightening speeds we do need to talk about larger numbers. In 1991 we got zetta (10^{21}) and yotta (10^{24}) and zepto (10^{-21}) and yocto (10^{-24}), and last month the International System of Units added four more terms for big numbers, two for the largest —ronna (10^{27}) and quetta (10^{30})—and two for the smallest numbers—ronto (10^{-27}) and quecto (10^{-30}). And as our computers have grown we're gone from megabyte to terabyte, and we will soon be facing petabytes, with exabyte, then zettabyte and yottabyte next to come.

I'm sure that, if I live long enough, quadrillion and petabyte will enter my counting terminology. I'm not sure, however, if I ever will have to need an unvingintillion, much less a Skewes' or a Graham Number .