

Star Names

No, these stars are not from the movies, nor are they professional athletes. I refer to the countless suns studding the night sky, impossibly huge but so astronomically far away that only several hundred are visible to the naked eye. The remainder is hidden from view by the vast distance, penetrable only by powerful telescopes. In Psalm 147:4 we read, "He determines the number of the stars, he gives to all of them their names." It's a verse to skip over easily; it doesn't make an immediate impact. Then you start to think: how many stars are there? Aren't there many millions of stars in our own Milky Way galaxy? Plus, aren't there millions of galaxies? Could this Bible verse, indicating that God calls every star by a unique name, be literally true? Is God powerful and omniscient enough to accomplish this? If God possesses the attributes ascribed to Him in the Bible, the answer must certainly be yes. Is it important to recognize that God has done this? In a way, no. But to demonstrate how truly great God is, to show His infinite control over the universe He created, to prove how far beyond our mortal comprehension He is, it is important.

So I started thinking: approximately how many stars are there? And if one made a printed list of potential names for all of the stars, what would be the nature of the list? How many books, of what size, would be required?

Scientists estimate that an average galaxy similar to our own contains about 100 billion stars (100,000,000,000). They also estimate that there are probably an equal number of galaxies: about 100 billion. Then the total number of stars in the known universe would be 100 billion times 100 billion, or 10 sextillion. This is a 'one' followed by 22 zeroes (10,000,000,000,000,000,000,000), a number so enormous that it defies human understanding. If the population of the earth in the early years of the 21st century is around 8 billion, you must multiply that amount by 12.5 to arrive at the number of stars in only one galaxy.

In postulating possible star names, it's interesting, though not absolutely necessary, to consider how long the names might be. With the English alphabet of 26 letters, one can calculate the number of possible names using a set number of letters by finding powers of 26: one-letter names would yield 26 names; two-letter names yield 26×26 , or 676; three-letter names, $26 \times 26 \times 26$, or 17,576. To make the math simpler, I reduced the alphabet to 20 letters (the specific letters chosen don't matter), so that now we have powers of 20: two-letter names yield 20×20 , or 400; three-letter names, $20 \times 20 \times 20$, or 8,000; four-letter names, $20 \times 20 \times 20 \times 20$, or 160,000, and so on. A number close to the number of stars (10 sextillion) is not reached until we consider names using 17 letters, yielding 20 to the seventeenth power, or about 13,107,200,000,000,000,000. This number, 13.1 sextillion, is more than sufficient for the number of stars. Any choice of seventeen letters would give the requisite amount.

To visualize a book containing such names, I considered a phonebook. A typical phonebook may contain 110 lines of names and phone numbers per column, with six columns per page, or a total of about 660 listings per page. Each of these listings could be a 17-letter name. A phone book one inch thick may consist of 900 pages. If each page has 660 names, then 900 pages give us 900×660 , or 594,000. Rounding upward, we can have 600,000 names per inch of phonebook paper. To figure how tall a stack of one-inch phone books containing 10 sextillion names would be, I divided 10 sextillion by 600,000, or 16,666,666,666,666,667. This number, about 16.7 quadrillion, is the number of one-inch phone books required to list 10 sextillion names. 16.7 quadrillion inches equals about 230 billion miles. A stack of phonebooks 230 billion miles high would reach from the earth to the sun---2473 times.

There are other ways to visualize how vast this amount of information is. Consider how much land area it would cover. A phonebook typically measures 9"x11" or 99 square inches. One square foot is 144 square inches, or enough for about 1.5 phonebooks. One square mile equals 27,878,400 square feet. Multiplying that figure by 1.5 equals 41,817,600, or the number of phonebooks fitting into one

square mile. The land area of the United States is 3,537,438 square miles. If we multiply this number by the number of phonebooks fitting into one square mile, we arrive at the number of phonebooks required to cover the entire land area of the United States. Multiplying 41,817,600 times 3,537,438, or rounding the figures to 42 million times 3.5 million, equals a single layer of about 147 trillion phonebooks, containing a total of 88.2 quintillion names (147 trillion times 600,000). Multiple layers of phonebooks would be necessary in order to arrive at the total of 10 sextillion names. If we divide 10 sextillion by 88.2 quintillion, then we arrive at about 114 layers of phonebooks, or about 9.5' high. Therefore, as an example of the space necessary to list 10 sextillion names in ordinary phonebooks, a layer of phonebooks 9.5' deep (or 114 layers of phonebooks, each of which are 1.5 inches thick), containing a total of almost 16.8 quadrillion books (114 times the 147 trillion in each layer), each book containing 600,000 names, covering the entire land area of the United States, would be required.

Or store the names in a computer.

This little mathematical exercise may seem silly to some, but it demonstrates how far beyond our comprehension God is. If God is infinite in His power and knowledge, then merely knowing 10 sextillion names is child's play. Why not 10 septillion? Ten octillion? Ten decillion? One of the largest named numbers in English is a vingtillion (from 'vingt,' French for 'twenty'), a 'one' followed by 66 zeroes (22 sets of three). A googol is a 'one' followed by 100 zeroes. A googolplex is a 'one' followed by a googol zeroes. You might think that a googolplex is quite a bit closer to infinity (mathematically speaking) than a vingtillion or a googol. Actually, it's not closer at all. An infinitely large number is so impossibly big that it defies any attempt to quantify it. Imagine an infinitely long line, starting at zero and stretching forever in one direction. The unit of measurement is immaterial. Now place the number googolplex on the line (again, whether you consider meters or kilometers or inches or miles doesn't matter). If you appreciate the nature of infinity, then you may as well place googolplex at zero. Putting it anywhere

else, even one angstrom from zero, would mean placing a finite limit on the measure of our infinitely long line, and that would negate the meaning of infinity.

This demonstrates in stark clarity the nature of the infinite God. If He knows an infinite number of names for the stars, then He knows an infinite number of items about an infinite number of subjects. He knows everything about everything. Everything that is possible to know, plus what is impossible to know from our perspective, He knows. There is absolutely nothing which He doesn't know. One of the joys of Heaven will be our unending freedom to ask Him about our universe. Thousands, even millions, of puzzles, conundrums, questions, mysteries, and unknowns, which we couldn't discover or unravel or answer, many of which we weren't even capable of answering, the vast majority of which we weren't even aware of, He will answer. There will be no end to knowledge in a million subjects, plus a billion others, plus another trillion, because God is the author, the source, the creator of all knowledge. He is the creator of everything possible to know, the maker of the infinite. God is infinite.