G-D IN THE NUMBERS

by Rabbi Yaakov Menken

This week's Dvar Torah is something of a digression. It starts with an email from a friend of mine, Robert (Chaim) Chesler, who is a serious student of Torah as well as a computer engineer. What he noticed will be appreciated by all the engineers and mathematicians among our readers, and I hope will be enjoyed by others as well.

We learned in last week's parsha that Sorah, whose name represents "s'rora", rulership, lived for 127 years. And in Megillas Esther we learn that King Achashverosh ruled over the entire world -- 127 kingdoms. So we see that there exists a connection between rulership and the number 127.

There are also numerous examples of the number seven representing malchus, kingship. First of all, 'malchus' is the seventh of the seven sefiros, types of G-d's revealed nature (there are ten sefiros, but three exist only in thought, in concept). There is a Sabbath Queen, who comes on the seventh day of the week; thus seven signifies dominance over the natural world. The seven "hakafos" on Simchas Torah and the 49 days of the Omer (seven cycles of seven, culminating in "malchus shebemalchus") all relate the idea of rulership, kingship, to the number seven.

Now, given his computing background, Chaim noticed that both seven and 127 are represented in binary (base 2) as strings of ones: 111 and 1111111. And he asked if there was a connection in Torah between these two numbers. While I couldn't find an immediate connection in Torah, I did see the same common thread as he, and wondered if it could be extended.

It turns out that both of these numbers are part of a limited class called the Mersenne prime numbers -- prime numbers whose values can be represented by $2^n - 1$, a string of ones in binary. They are the second and fourth such numbers.

The first Mersenne prime is the number three. Three, as we all know, are the fathers of the Jewish people, the leaders who created the nation.

The third of these Mersenne primes, on the other hand, is the number thirty-one. What is the connection between 31 and kingship? Is there such a thing?

Actually, the answer is a most emphatic yes. In Sefer Yehoshua, the Book of Joshua, we learn that Yehoshua was the leader of the Jewish People when they entered and conquered the entire land of Canaan -- defeating thirty-one kings. Rulership over the Land of Israel meant rulership over thirty-one kingdoms.

Is there a lesson here? All of these numbers are represented in binary as a row of ones. Interestingly enough, when 'n' is 3, 7, 31 or 127 in the formula $2^n - 1$, each of these produces another Mersenne prime. In other words, these numbers relate to the others -- a row of 3 ones produces binary 7, while a row of 7 ones produces binary 127. And all of them point back to and depend upon the number one, which even in the world of prime numbers is considered unique, in a class by itself.

One, of course, is Hashem, Melech Malchei HaMelachim, King of Kings. What do all these numerical hints tell us? Perhaps that all kingship and rulership points back to HaShem, it all depends entirely and only upon HaShem, "the hearts of Kings are in the hands of HaShem..."

And Chaim adds the following: "I have heard rabbis discuss 'one more than seven' to represent the next world. When seen as filling all the binary places of 7 digits it makes clear why saying 'one more than' becomes significant when applied to numbers which are one less than a power of 2, since they do bring us up to the next sphere or range of numbers.

"Perhaps achieving mastery over this physical world is the maximum we can do in this limited world, and we cannot advance to the next number of digits until we have mastered these digits for every 'bit' of reward we can earn in this world."

Well said!

Good Shabbos,

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