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## 248

from Harav Yitzchak Ginsburgh

In this lecture, we will discuss the significance of the number 248. Many of us are probably aware that 248 has tremendous significance in Torah. First of all, 248 is the number of positive commandments in the Torah. In total, the Torah contains 613 commandments of which 248 are positive (and 365 are prohibitive). The sages also teach us that the 248 positive commandments correspond to the limbs of the human body. A limb is defined in Halachah as a bone around which there are sinews and flesh. What this means is that according to Halachah, in the human skeleton there are 248 basic components.<sup>1</sup>

The reason that we have chosen this topic is because it has relevance to a theory that was recently developed in physics. This theory is very speculative and has aroused a great deal of controversy and even outright rejection by some physicists. Nonetheless, others see in it positive prospects for constructive research in the future, especially once the new Large Hadron Collider at CERN goes online next year. The theory that we are referring to is not based on String Theory but on Quantum Mechanics as known to date. It is based on a mathematical group called the  $E_8$  Lie (pronounced: Lee) group. This theory predicts that our universe has 248 elementary particles. Whether it is proven fully or not, in any case many physicists feel that the  $E_8$  Lie group is one of the most beautiful mathematical structures. If this structure can indeed be used to correctly describe all of the particles and the four forces, it will truly be an amazing thing. Such a level of unification in physics has not been achieved by any theory to date.

### 248 Particles

Before we begin let us share a beautiful observation. In the past, long before this theory was introduced, we ourselves thought that the number of elementary particles in the universe should be 248. Why is this? Because, by Divine Providence, in modern Hebrew the word for an elementary particle is חלקיק, whose numerical value is 248. This word is based on the Hebrew word for "part" (חלק), to which the two-letter suffix יק, which indicates extreme smallness are added, meaning together "a very small part." This word was chosen by Divine Providence, and the committee for modern Hebrew language who selected this word for "elementary particle," did not do so on the basis of its numerical value. This is a beautiful example of something that comes directly from God.



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In modern Hebrew, this word does not only mean an “elementary particle.” It is also used to denote any very small entity or unit. One of the most common uses of this word is חלקיק שנייה, meaning “an infinitesimal part of a second,” like an eye blink. In the Torah, the second smallest unit of time is called a “part,” (חלק), the original base word of חלקיק. There are 18 such parts in a minute, meaning that each “part” is the equivalent of three and a third seconds. There is also a smaller unit of time called a *rega* (רגע), which literally is translated as “moment.” A *rega* is 1/76<sup>th</sup> of a “part,” which works out to about 1/23 of a second. In any event, because the smallest measure of time that we usually use is a second, the idiom חלקיק שנייה, “an infinitesimal part of a second,” is a way to express the smallest unit of time.

We already know that the numerical value of the word חלקיק (small part) is 248. But, amazingly, the second word, “second” (שנייה) is equal to 365, which is the number of prohibitive commandments in the Torah, the number that in Torah is the complement of 248. So the value of the full idiom, חלקיק שנייה, is 613. The image that this idiom summons is of the entire Torah captured and encapsulated in one particle of a second. Now, what exactly is a particle of a second, or a particle of time? In quantum theory like energy, time too is quantified, meaning that it can be broken down into basic units and no further. In other words, time is not continuous but discrete. The best way to describe the smallest quanta of time would therefore be this Hebrew idiom חלקיק שנייה. In Kabbalah, time is considered even more primary than space and matter. According to Kabbalah, time is a masculine entity that enters space, which is feminine. So in a certain sense the seed of reality is a quantized instant of time, a particle of a second, which as we said is equal to 613.

This was an example of how Divine Providence works in modern Hebrew.

Let us now go on to how this number, 248, appears in the Torah. What we are going to now look at are a name and an idiom whose numerical value is 248.

### From Abram (243) to Abraham (248)

The most important name in the Torah that equals 248 is the name of the first patriarch of the Jewish people: Abraham (אברהם). Originally, Abraham’s name was Avram (אברם) whose value is 243. But, when Abraham was 99 years old, God commanded him to circumcise himself and added a letter *hei* (ה) to his name, whose numerical value is 5, thus bringing the full numerical value of his name to 248. Now, we would like to try and understand why it was that Abraham began with a name that equaled 243 and then had to have added to his name the letter *hei* to get to the final form of his name that equals 248.

The answer given by the sages is that before his circumcision, Abraham had complete control over 243 limbs. He served God, that is, he chose to do only that which was proper in God’s eyes with 243 of his limbs. (We should note that in this teaching of the sages the definition of the term “limb,” *evar* [the first three letters of Abraham’s

name], is not identical with its definition as a basic part of the skeleton that we saw above. Here it appears in the sense of “organ,” though not necessarily excluding the presence of a bone within an organ. Later on we will see that the concept of 248 limbs exists on two different planes, one physical and one spiritual, that are intended to be united. In the “enclothment” process [of the spiritual entering the physical], the 248 reflects itself as the number of the body's organs [such as the eyes into which enter the spiritual power of sight].) By circumcising, Abraham gained control over five more organs: his two eyes, his two ears, and his procreative organ—the organ of circumcision. Normally, the experiences that these 5 organs are sensitive to are not voluntary. Likewise, you cannot always choose what to see, or what to hear; even though the sages say that a person cannot inseminate without willing it, sexual arousal itself is not always voluntary. But, through the act of circumcision, God gave Abraham super-natural control over his eyes, ears, and procreative organ. Once Abraham was circumcised and had control over his entire body, he was fit to truly procreate and give birth to the Jewish people.

Another explanation for Abraham's change of name that changed his value from 243 to 248 is based on the Book of Formation (*Sefer Yetzirah*), the first Kabbalistic work attributed to Abraham himself. There we find that reality comprises 5 dimensions, known by their Hebrew acronym *Ashan* (אשן), which stands for space (עולם), time (שנה), and soul (נפש). Since there are three spatial dimensions, one time dimension, and one soul dimension, we have altogether 5 dimensions. By definition, every dimension is a coordinate that has two extremes (called “depths” in the Book of Formation). The three spatial dimensions are drawn between high and low, north and south, and east and west. Time runs from the past to the future. The soul dimension's two extremes are good and evil.

What is the meaning that there is a soul dimension in addition to space and time? At every point in space and time there is also a soul coordinate, which means that at any time and place, we can, by our actions plot our location on a good-evil continuum. The fifth coordinate is invisible to most of us and where you are on that coordinate of the soul, whether you are good or evil, depends on your free will, so in a sense, this is the free-will coordinate that exists at every moment and in every place that you may find yourself. Though our regular human experience recognizes 4 dimensions (3 spatial and 1 temporal), Abraham dedicated his life to teaching us about this fifth dimension that science has not yet recognized.

Now, just as the 5 dimensions of reality are divided into 3 categories (space, time, and soul) so everything that God created, and the human body exhibits this the most, every entity is divided into three. In the human body, every limb is divided into three segments: every finger is divided into three, the arm, the leg, the body itself, etc. God divides everything in reality into three. The human body is a microcosm which exhibits this idea. How is this division into 3 and the five dimensions all hinted to in Abraham?

Abraham's original name, Avram אַבְרָם, which is equal to 243 is also 3 raised to the power of 5, or  $3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 = 243!$

What then did Abraham gain by his circumcision? He gained an awareness of the consummate wholeness, of the very essence of each of these 5 dimensions. God revealed to Abraham the essence of each of the five dimensions, which is implied by the increase of the value of his name from 243 to 248.

If we take these two explanations—the one offered by the sages and the one that is derived from the Book of Formation—and add them together we come to the conclusion that the two eyes, the two ears, and procreative organ correspond to essence of the five dimensions of reality. Each of these organs is sensitive, so to speak, to the essence of one of these five dimensions. Clearly, the procreative organ corresponds to the good-bad, the soul dimension.

## 248 and circumcision

We began with this new physical theory that maps all of the elementary particles onto the  $E_8$  Lie group. The fact that this group has 248 points encourages us to look for a connection between 8 and 248. Indeed 248 is a multiple of 8. This is important because Abraham attained complete control of his 248 limbs on the day of his circumcision, which is normally carried out on the baby's eighth day. Whereas the number 7 represents the consummate state of everything that is natural, 8 represents that which is beyond nature. The number 7 is immediately associated in our minds with Shabbat, the seventh day. But, God commanded that we circumcise our children on the eighth day because circumcision connects the child with the supernatural, i.e., with his soul root. Indeed, the sages teach us that circumcision transcends Shabbat so that it is permitted to circumcise a child on the eighth day even if the eighth day falls on Shabbat.

So we have that the value of Abraham's name, the first person to perform circumcision, is a multiple of 8:  $248 = 8 \cdot 31$ . Isaac, who was born in virtue of Abraham's own circumcision, was the first person to be circumcised on the eighth day. The numerical value of Isaac (יצחק) is 208, also a multiple of 8:  $208 = 8 \cdot 26$ .

26 and 31 are the numerical values of two of the holy Names of God. 31 is the value of the Name *Kel* (אֵל), which corresponds to the *sefirah* of loving-kindness, as implied in the verse: "The loving-kindness of God [*Kel*] lasts all day." Abraham is indeed the archetypal soul of loving-kindness. This verse also implies that it is through loving-kindness (through Abraham) that God recreates the world all day long, meaning continuously. 26 is of course the value of the God's essential four-letter Name, *Havayah*. Thus, Isaac, whose name is a product of 8 and 26 corresponds here to *Havayah*. Between the different holy Names of God, *Havayah* corresponds to the *sefirah* of beauty and the attribute of compassion.

Let us also add that 31 is a prime number. In fact, it is the 12<sup>th</sup> prime number. As we shall see shortly, 12 is considered one of the sources of 248 in the Torah and is the secret of the highest state that Abraham achieved in his life.

So far, we have analyzed the number 248 in two different ways:

- $248 = 3^5 (243) + 5$
- $248 = 31 \cdot 8$

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<sup>1</sup>. The number of bones in the human body changes over time. Infants start out with less bony material and more cartilage. As the body matures, cartilage solidifies into bone. According to medical studies, at the age of 18, the average male body has 248 bones. As the person continues to mature, the number of bones in the body drops because as more cartilage hardens, smaller bones begin to coalesce, fusing together to create larger bones.