

The Unification of Torah and Science: Basic Principles and a Case Study on Electromagnetism

Part 7—Penetrating the Iron Wall

Before the destruction of the Temple, God told the prophet Ezekiel to perform a symbolic task in order to validate the prophecy of the siege of Jerusalem that would soon occur. God told Ezekiel "Take an iron skillet and place it as an iron wall between yourself and the city [of Jerusalem] and turn your face towards it and it shall be as a siege and you shall besiege it – this is a sign for the House of Israel." A skillet is the flattest type of cooking pot and the commentators explain that this is a symbolic act in which Ezekiel, by gazing at the city, represents God who is actually at war with the city.

The phrase "an iron wall," describes the state of exile that has been since the destruction of the Temple, as we find in the Talmud, "Rabbi Eliezer said, 'since the day that the Temple was destroyed, an iron wall has divided between Israel and their Father in heaven, as it says, "Take an iron skillet and place it as an iron wall [*kir barzel*] between yourself and the city [of Jerusalem].'" Whereas the verse describes the beginning of the destruction, Rabbi Eliezer learns from it that this is the constant state throughout the exile.

This quote of Rabbi Eliezer is the second of five quotes that the Talmud brings in his name, the first of which is, "Rabbi Eliezer said, 'since the day when the Temple was destroyed, the gates of prayer have been locked... even so, the gates of tears have not been locked.'" From the juxtaposition of these two sayings, we can learn that even though prayers are unable to pass through the iron wall, tears are able to penetrate it. The numerical value for the word "steel" (פלדה), which is iron in its most superior form, has a numerical value of 119. This is the exact numerical value of the Hebrew word meaning "tear" (דמעה). According to Kabbalah, in the midnight lament over the destruction of the Temple, our main intention is that the numerical value of Rachel (רחל) equals 238, exactly twice the value of the word meaning, "tear." Rachel sheds a tear from each of her eyes over the fate of Knesset Yisrael.

A Temple of Iron

Regarding the rebuilding of the Temple, based upon teachings of the Arizal, although not explicit in them, the Lubavitcher Rebbe teaches us a surprising innovation. Although in the first and second Temples it was forbidden to use iron in the building itself and the altar became disqualified if iron even touched it, the third Temple, so the Rebbe teaches us, will be built entirely of iron. The sages teach us that the reason for the strict prohibition against iron in regard to the

altar was because iron is the source of weapons which are intended to shorten life, while the altar is intended to lengthen life. This is illustrated clearly by the fact that the Hebrew word meaning "sword" (חרב), a weapon made of iron, is from the same root as the word meaning "destruction" (חרבן). By extending this principle, no iron was used at all in the construction of the first and the second Temple.

There is written proof in the Bible that supports this astonishing innovation of the Rebbe. In the account of the building of the first Temple in the book of Kings, no iron is mentioned at all, yet in Chronicles it says that when King David prepared the materials for the construction of the Temple (built later by his son King Solomon) he prepared gold, silver, copper and iron. In fact, the amount of iron in the account in Chronicles is exceptionally more than all of the other metals, the proportion being 5:10:18:100 thousand talents. Yet no mention is made at all of how this enormous amount of one hundred thousand talents of iron was used in the actual construction of the Temple! The Ramban hypothesizes that it was used for tools which were used for the preparation of stones outside of the vicinity of the Temple, however this does not seem to be an adequate answer. The Maharzu on the *midrash* explains that even though there was no iron used in the Temple proper, there were various buildings around the Temple in the

outer courtyard that were constructed of the iron that David had brought for this purpose. Although this interpretation is certainly more acceptable than the first, it still remains unsatisfactory.

The Rebbe explains the accumulation of this grand amount of iron in a mystical way. He explains that King David collected the iron because he believed and hoped that this Temple would signify the complete redemption. Knowing that the final Temple would be constructed of iron, he collected one hundred thousand talents of iron, which is the amount of iron we will need to construct the third Temple for which we are waiting.

Nowadays, impressive buildings and stately homes are built of iron, thus we see that the rectification of iron is through its use in building magnificent buildings, and there can be none as magnificent as the Temple in Jerusalem. From here we learn the importance of iron as a strong and stable material in the construction of buildings.

Yet, before iron changes from a metal used for negative use, such as weapons etc, it must first undergo a purifying stage. This is the third stage of Mashiach, in which there will be no more swords in the world, "A nation shall not raise a sword to a nation," and "They shall pound their swords into ploughshares." From here we can understand the reason why war is adjacent to Mashiach, because first the

negative power of iron must be exhausted through the intermediate state of a sacred war, and only then can it become a completely constructive force, as in the ploughshares that will be produced from the swords, and even more so, as the material used in the construction of the Temple.****

The Fourth Property of Iron

So far, we have mentioned three properties of iron. The first is the strength and stability of iron that lends itself particularly to use in construction, and the second property is the value of iron in the blood as it carries oxygen to all parts of the body, just as the Temple carries vital spiritual oxygen to all of humanity on earth. The third property of iron is its ability to be made into sharp instruments, like a pickaxe, a sword, or a needle.¹

We will now turn to a fourth property of iron which we will discuss extensively throughout the remaining chapters. This mysterious property is the natural ability of iron to become magnetic. Since the third Temple will be constructed of iron, we can begin to understand that the Temple will be the center of a gigantic magnetic field that will draw all nations of the world towards it to pray to the one God of Israel. We will also see how each Jewish person himself has a magnetic

¹ One verse in the Torah which refers to this quality is, "As iron with iron together, so is a man together with the face of his companion," which the sages interpret to refer to two Torah scholars who sharpen their wits against each other as when one whets two knives against one another.

quality by which he is capable of drawing out the sparks of holiness that have fallen into reality.

All that we know today about the reactions of atoms and sub-atomic particles is directly connected to electromagnetism. Similarly, the majority of forces that one experiences in life, such as lifting an object or pushing or pulling somebody, are either immediate or secondary results of the electromagnetic force. All chemical reactions and all chemical compounds are the results of the electromagnetic phenomenon. The only other force of the four known forces of nature that can be experienced directly is gravity. We experience gravitation, the weakest of the forces of nature, when falling (or seeing/feeling an object fall).²

The other metal besides iron that is generally involved in electromagnetism is copper,³ which is used in electric wires because of its good conductive properties. Even since the dawning of quantum electrodynamics, which is the most recent

² In fact, gravity and the sense of falling are also related in an indirect way to iron, since the verb *nafal*, to fall, is associated with *goral*, fortune, as in the expression in Megilat Esther, *hipil pur hu hagoral*. The numerical value of *goral* is 239, the value of *barzel*. These are the only two nouns in the entire Tanach that share a numerical value of 239. Another verb associated with *goral* in the Tanach is *alah*, to rise, a verb that describes a counteraction of gravity.

Even though science has not yet fathomed the unity of electromagnetism and gravity, because gravity is most elusive and does not apparently combine with any other force. Nonetheless, there is one very strong indication in science that gravitation is related to electromagnetism and that is the inverse square function of the force relative to distance. Newton revealed that function with regard to gravitation, but Collin later revealed the same thing with regard to electromagnetism.

Since both forces have this common denominator of obeying the inverse square law, that very clearly indicates that there must be a strong relationship between these two forces, even though gravity is infinitely weaker than any other force.

³ Although the best conductor of electricity is silver and copper is only the second-best conductor, most commercial electrical wires are made of copper because it is less expensive.

In this group of seven metals, copper and iron are *tiferet* and *malchut*, respectively. In the Torah these two metals often appear together, creating here the union of God and His Divine presence.

and full description of the electromagnetic force and the explanation why iron polarizes and becomes naturally magnetic more than any other element, there is still no simple way to explain the phenomenon of magnetism. Yet the Torah makes it clear that iron is the metal that represents magnetism, as we shall see. Similarly, copper represents electric current. Since Maxwell, we now know that electric current and magnetism are merely two different appearances of the same force, which explains the inherent union of these two metals in the Torah.