

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

Part 9--A Kabbalistic Model of Theories

Above, we have offered a concise overview of the ten major theories of electromagnetism developed until today. We will now continue to arrange them in a Kabbalistic model according to the ten *sefirot*, beginning with the lowest *sefirah*, *malchut* and evolving towards the highest *sefirah* of *keter*, which will eventually be filled by the final and all-inclusive General Unified Theory of all natural and supernatural forces which Mashiach will reveal to us imminently.

By dealing with the discoveries of these scientists, our intention is to perform a rectification of their theories by "magnetically" removing the sparks of holiness and bringing it back into the fold of Judaism. This rectification is achieved in particular by placing each of them into the correct *sefirah*.

Since *malchut* is the *sefirah* that relates to God's kingdom on earth, it corresponds to Gilbert's discovery that the whole earth is in fact a magnet. This idea further corresponds exactly to the idea expressed by some of the earliest Kabbalists that *malchut* is a giant magnet. In particular, this idea is expressed by

Yitzchak Sagi Nahor who taught that the world of *Atzilut* is a magnet that draws Divinity into the world.

The second discovery, that static electricity can be converted into current, corresponds to the *sefirah* of *yesod*, since electricity is a *yesod* symbol. Electric current represents the arousal of the *sefirah* of *Yesod*.

Next, the fact that electric current can induce a magnetic field, which is also described as an "aura," between the wires that convey the current, is a manifestation of the *sefirah* of *hod*.

Netzach means "eternity" therefore it is understandably associated with the introduction of time into the equations, allowing moving magnetic fields to produce electric currents. The *sefirah* of *netzach* is paired with the *sefirah* of *hod*. Just as in *hod* we have electricity inducing magnetism, so too in *netzach* we have magnetism inducing electricity. The concept of fields is also associated with *netzach*, since *netzach* is referred to as something that extends beyond the physical body.

Discovering that light is an electromagnetic phenomenon is the manifestation of the *sefirah* of *tiferet*. *Tiferet*, meaning "beauty" is described as a harmonious blend of color and as we know, light, when it is directed through a prism, produces the entire spectrum of colors. Since the discovery of its electromagnetic

nature is recognizing the physical reality of light, it is seen to be a revelation of *tiferet*. In addition, the *sefirah* of *tiferet* contains an element of *chochmah*, which is manifest in the wisdom of Maxwell's equations which form a beautiful and original mathematic statement of the physical reality.

Invisible radiation, the discoveries of Hertz, is a revelation of *sefirah* of *gevurah*, which represents concealment and constriction. In this case, that which is concealed from our physical eyes is revealed to exist and is even utilized for the benefit of mankind.

Hertz's personal life can also be seen to be a manifestation of the *sefirah* of *gevurah*. He died from toothache at the age of 32 or 33 and in letters that he wrote to his mother as a student, he complained that he has no reason to live and that he is worthless. According to some sources, it was Hertz's wife who observed the sparks that emanated from his experiments, which is certainly fitting, as women are associated with the *sefirah* of *gevurah*, as in the Kabbalistic statement (quoted above), "the construction of [the *sefirah* of] kingdom is from might."

Zeeman's breakthrough refers mostly to astronomy and cosmology and is thus associated with the *sefirah* of *chesed*, the *sefirah* of the Torah's archetypal astronomer, Abraham, who God directed to step outside the general closed universe, looking down on it to "count the stars". Because of its cosmic

implications, this discovery is the one that most relates to the creation of the world, which is a property of *chesed*, as we are taught, "the world is constructed of *chesed*." Similarly, in Hebrew the name of Abraham, associated with *chesed*, is a permutation of the word *behibaram*, "when they [the heavens and the earth] were created," which, the sages teach us, similarly implies that the world was created with the *chesed* characteristic of Abraham.

Another basic modern concept of physics, which is related to Zeeman, is the research that led to the discovery of the electron, the underlying building block of the universe. In contrast to the cosmological information discovered by Zeeman, this discovery relates to the most basic particle of creation, and so can be compared to God showing Abraham both the stars of the heavens and the dust of the earth, observing every phenomenon of creation, from the highest to the lowest.