

SCIENCE AND KABBALAH



I have often been amazed at some of the uncanny correspondences I find between science and either *Kabbalah* or rabbinic literature. In general, though, when a conclusion in Judaism does match up with scientific belief, the two disciplines will have arrived at their results by entirely different methods. Nonetheless, every time I do find a correspondence, I find it very interesting. Here are a few of my favorites.

The Big Bang

The currently accepted belief in the scientific community is that the universe began with a bang – the *Big Bang*. And following this *Big Bang* was an expansion of space that continues to this day. In the *Zohar*, we find a description of creation that sounds an awful lot to me like the *Big Bang*.

“It is written, ‘And the intelligent shall shine like the brightness of the firmament, and they that turn many to righteousness like the stars for ever and ever (Daniel 12:3).’ There was indeed a 'brightness' (Zohar). The Most Mysterious struck its void, and caused this point to shine. This 'beginning' then extended, and made for itself a palace for its honor and glory. There it sowed a sacred seed which was to generate for the benefit of the universe, and to which may be applied the Scriptural words 'the holy seed is the stock thereof' (Isaiah 6:13). Again there was Zohar, in that it sowed a seed for its glory, just as the silkworm encloses itself, as it were, in a palace of its own production which is both useful and beautiful. Thus by means of this 'beginning' the Mysterious Unknown made this palace. This palace is called Elohim, and this doctrine is contained in the words, 'By means of a beginning IT created Elohim.’”

(Zohar I:15a)

The Age of the Universe

Of course, there are those religious fundamentalists who believe that the world is only 6,000 years old in spite of solid scientific evidence to the contrary. Current scientific estimates place the age of the universe at about *13.82 billion years*. Interestingly, in the 13th century, *Rabbi Isaac of Akko* came up with an age for the universe that is much closer to the current scientific estimate. By concluding that *Sabbatical* cycles before *Adam* should be measured in divine years instead of human years, he concluded that the universe was created *15.34 billion years ago*. Close enough for government work!

The Multiverse

Many physicists now believe that we live, not in a universe, but in a multiverse. Among other things, they reason that only if there are multiple universes is it possible for one of them to be a *Goldilocks Universe* where everything is just right for planets and life to emerge. Interestingly, the rabbis of the *Talmud* came to a similar conclusion based upon their conclusion that time existed before the creation of our universe. It is also quite likely that they felt that only *God* should be eternal, and everything else should be subject to the cycles of birth and death.

“AND THERE WAS EVENING, etc. R. Judah b. R. Simon said: ‘Let there be evening’ is not written here, but AND THERE WAS EVENING: hence we know that a time-order existed before this; R. Abbahu said: This proves that the Holy One, blessed be He, went on creating worlds and destroying them until He created this one and declared, ‘This one pleases Me; those did not please Me.’ R. Phinehas said: This is R. Abbahu's reason: And God saw everything that He had made, and, behold, it was very good (Genesis 1:31): this pleases Me, but those did not please Me.”
(Genesis Rabbah III:7)

“R. Tanhuma commenced: He has made every thing beautiful in its time (Ecclesiastes 3:11). Said R. Tanhuma: The world was created when it was due, and the world was not fit to be created earlier. R. Abbahu said: Hence we learn that the Holy One, blessed be He, went on creating worlds and destroying them until He created these [heaven and earth], and then He said: ‘These please Me; those did not please Me.’” (Genesis Rabbah IX:2)

The Impossibility of Knowing God

In mathematics in the theory of sets, it has long been known that when collections get too large, they become contradictory. A simplification of the argument goes like this. We think of a set as a well-defined collection, and mathematics allows for the existence of infinite sets or collections such as the set of all counting numbers, $\{1,2,3,\dots\}$. However, given any set, even infinite sets, there is a standard way to create an even bigger set. Consequently, in mathematics, it is possible for infinities of different sizes to exist.

Now consider the set or collection of everything. Surely, nothing could be bigger than this. But on the other hand, mathematics tells us precisely how to construct something bigger. Paradox! Thus the sum of all things is not something we can really define precisely. It is, indeed, very mysterious.

“Lo, these are but parts of His ways; and what blemish of aught is heard of Him! But the thunder of His mighty deeds who can understand (Job 26:14)?” Rav Huna said: “Whatever things you see are but parts of the ways of the Holy One, blessed be He, as it says: ‘Lo, these are but parts of His ways.’”
(Genesis Rabbah XII:1)

“When Concealed of all Concealed verged on being revealed, it produced at first a single point, which ascended to become thought. Within, it drew all drawings, graved all engravings, carving within the concealed holy lamp a graving of one hidden design, holy of holies, a deep structure emerging from thought, called Who, origin of structure. Existent and non-existent, deep and hidden called by no name but Who.”
(Zohar I:2a)

String Theory

One of the more elegant theories of particle physics and how everything came to be is what is known as *string theory*. The mathematics behind it is quite challenging! There are several different versions of *string theory*, but we now know that they are all just special cases of a more comprehensive theory known as M-theory. What intrigues me, though, is that in the original *bosonic string theory* the universe has 26 *dimensions*, and in *superstring theory* it has 10 *dimensions*. For me, it is an extraordinary coincidence that the numerical value of the most sacred name for *God* in Judaism is 26, and, of course, the number 10 corresponds to the 10 *sefirot* and the 10 *utterances* with which *God* created the universe.

The Particle and the Wave

In quantum physics, we learn that every particle of matter exists as both a *particle* and a *wave*. As a *particle*, it exists at a precise location in space with well-defined boundaries, but as a *wave*, it extends throughout the universe and blends with other waves. Boundaries are fuzzier. As I see it, we sometimes experience ourselves more as a *particle* and at other times more like a *wave*. Sometimes we feel connected with everything, and at other times, our boundaries feel more rigid and isolated. The rabbis of the *Talmud* reached a similar conclusion with regard to *Adam*, the *first man*.

“Rab Judah said in Rab's name: The first man reached from one end of the world to the other, as it is written, Since the day that God created man upon the earth, even from the one end of Heaven unto the other. But when he sinned, the Holy One, blessed be He, laid His hand upon him and diminished him, as it is written, Thou hast hemmed me in behind and before, and laid Thy hands upon me.”
(B. Sanhedrin 38b)