

B”H

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

Introduction

The following article on Torah and science is a study on the relationship between these two dimensions. What are the justifications and theoretical underpinnings for attempting to unify Torah and science?

What are the goals, as well as the risks?

What is it about Torah faith and knowledge which might enable scholars of Torah-science to make significant contributions to science—and to modern Torah scholarship? This article will take us on a journey. Here is a sampling of ideas discussed:

- *The Big Bang and Breishit Bara*
- *G-d’s Name and the Four Forces of Nature*
- *Faith, doubt and the magnetism of the Jewish soul; being, becoming and falling*
- *A Kabbalistic model of theories, wherein ten major theories of electromagnetism are arranged according to the ten sefirot.*
- *Rabbi Isaiah Horowitz’s (The Shl’ah HaKadosh) hypothesis regarding the lodestone’s property of "entanglement".*

In Kabbalah, science is considered to emanate from the left side of the sefirotic scheme, making it feminine relative to Torah. The four Matriarchs are seen as an analogue for four levels of ascending relationship between science and Torah, while iron and the seven basic metals are examined numerically to show their inter-relationship with Torah.

There are a number of different approaches for dealing with the integration of Torah and science, some of which are in practice in various institutions around the world today. The first is to relate to them as two distinct disciplines, with no apparent connection; in the morning you study Torah, and in the afternoon you study science. A second approach is to integrate the two, a type of cross-pollination. We may often describe our objective as this type of integration. However, the ultimate goal must be to reveal the Divine aspect of creation that is hidden within science. In a sense, the goal is to turn the study of science into a source of inspiration towards a greater appreciation of the depths of the Torah.

A love of science is prerequisite to creating a unified perspective on Torah and science. Maimonides, the most famous Torah scholar to possess a deep love of science, wrote that he was afraid that his love for the maidservant would overcome his love for the wife. Rambam used the righteous woman as the

symbol of the Torah, and the maidservant as the symbol of science; he was worried that his love of science would outdo his love for Torah.

In this article we will attempt to discover the key to solving the apparent contradiction between Torah and science, and we will offer a fascinating example of how they augment each other.

Please G-d, we will be posting installments on a bi-weekly basis. Enjoy your studies!

Part 1: The Permissibility of Studying Science

To the casual observer, Torah and science are two completely different domains. Scientific wisdom is able to formulate theories that can adequately explain observable facts and phenomena, yet such theories can never be proven to be correct; they can only be refuted. Scientific theories are based on inductive logic, which has been called, "the mother of all problems." Induction relies heavily on the premise that what has happened consistently in the past will continue to happen in the future and what happens under observation also happens when unobserved. However, neither of these premises can ever rationally be proven correct. In fact, in his talks about forty years ago, the Lubavitcher Rebbe said that since we do not have any proof that the laws of nature remain constant, it is very likely that they are subject to change and indeed, in certain fields of science, his words are already being realized.¹ Since belief takes over where rational proof comes to an end,² although most scientists would blatantly deny it, the

¹ See discussion on the fine structure constant below.

² "...as long as the rational mind understands something, faith is not necessary and the essence of faith is only where the rational mind ends and the matter cannot be rationally understood" *Likutei Moharan II*, 8:7.

laws of induction are actually the fundamental belief system of science because the basic premises can never be rationally proven. A scientific theory which may have seemed, at one time, to be the best theory for explaining a set of natural phenomena, may later be proven wrong. Unlike mathematics, which is a pure science, scientific theory can never be proven. Quantum Electro-Dynamics (Q.E.D.), the most well-founded theory in all of science, is also impossible to prove. In contrast to the inductive rationalization of mortal man as the questionable foundation of all scientific progress, the fundamental belief of Torah wisdom as the ultimate, God-given truth can never, by definition, be refuted. It can only be proven to be correct. In this sense, scientific wisdom is diametrically opposed to Torah wisdom.

The fact that scientific theories can only be refuted indicates that science reflects the attribute of Gevurah, or Judgment. Like a suspect in a crime who is "innocent until proven guilty," scientific theories are constantly subjected to harsh examinations until the "prosecution" collects enough evidence against them to enable their refutation. Similarly, scientific knowledge aspires to be very exact and precise, like the attribute of judgment itself. In contrast, the Torah is called "the Torah of loving-kindness." It begins

with clothing the naked³ and concludes with burying the dead,⁴ both exemplary acts of loving-kindness.⁵

The Torah teaches us to always judge people favorably, against all odds, even when the evidence seems to be most incriminating, and to take into consideration even the most unexpected, extenuating circumstances.⁶ Because the type of logic involved in scientific investigation is the very antithesis of Torah logic, most great Torah scholars shy away from it unless it is technologically (technically) propitious.

Reb Isaac of Homil, a Chabad chossid and prodigious scholar, defined the Torah as refined Wisdom, rooted in the supernal World of Emanation, the result of ultimate unity; while scientific wisdom, which stems from the lower Worlds, relies on constant proof.

Because it is based on human logic, science is fallible. Even the greatest of scientists, such as Einstein, for instance, made mistakes. The greatest mistake he made in his career as a scientist was that he did not realize, and even denied, the implications of his own general theory of relativity, and the conclusion that the universe itself is expanding.

Instead, he inserted the cosmological constant to keep the universe "static." When Hubble, observing the Doppler effect of a red shift in other galaxies proved that the

³ *Genesis, 3*

⁴ *Deuteronomy, 34*

⁵ *Sotah 14a.*

⁶ *Avot 1:6; Shabbat 127b.*

universe is expanding and discarded the cosmological constant, Einstein's reaction was much like the reaction of King David when faced with his sin with Bathsheba⁷ — he confessed immediately. This shows the risk that even the greatest scientist is taking when he posits a particular theory. In contrast, the Torah forbids gambling; although a particular Torah scholar may be mistaken in his reasoning, the Sinaitic/rabbinic tradition⁸ of the Torah is always the triumphant winner.

To summarize:

Torah	Science
Divine Logic	Human logic
Irrefutable	Fallible
Loving-kindness	Judgment

⁷*II Samuel, 12:13.*

⁸It should be emphasized that any innovative interpretations of the Torah that do not stand in line with accepted tradition should be considered warily.

These contradictions would seem to negate any possible connection between the two domains, bringing us into a gaping "black hole" (however, thanks to Hawkins and others, it is possible to exit a black hole...). Torah and science are so diametrically opposed to one another that even if there is a permissible way to study science according to the Torah, the union of the two still seems highly improbable.

Yet, Torah and science need to be unified in order to complete the ultimate redemption process. The wedding of the Divine wisdom of the Torah with the human, secular wisdom of science sets the backdrop for the Redemption by the Moshiach. By revealing to all nations G-d's unity with, and Providence over the world, it brings peace and blessing to all.