

The Original Version and Prototype for the Book of this Name

# **EVOLUTIONARY CREATIONISM**

**Torah Solves the Problem of Missing Links**

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# C O N T E N T S

<b>1</b>	<b>TORAH, SCIENCE, AND CREATIONISM: THREE FRAMES OF CONCEPTION AND PRECONCEPTION</b>	<b>4</b>
<b>2</b>	<b>A METHODOLOGY OF DYNAMIC PARADOX</b>	<b>6</b>
<b>3</b>	<b>DARWIN AND GENESIS: THEIR STATUS QUO</b>	<b>7</b>
	<i>Sorting Out Their Spheres Of Discussion</i>	7
	1. Content	
	2. Context	
	3. First Cause	
	4. Author	
	<i>Clarifying Terminology</i>	7
	1. Science	
	2. Scripture	
	<i>Identifying Points Of Conflict</i>	8
	1. Time Frame	
	2. Ancestry	
	3. Man from Monkey	
	4. Random and Arbitrary Development	
	<i>A Jewish Understanding Of Genesis: The Basics Of Creation Exegesis</i>	9
<b>4</b>	<b>EXPANDING HORIZONS: THE FRONTIERS OF RECONCILIATION</b>	<b>12</b>
	<i>Time's Relativity</i>	12
	<i>Kinship In A Multidimensional World</i>	15
	<i>Man From Monkey: A Question Of Self Definition</i>	22
	<i>Environment: As An Instrument Of Providence</i>	24
<b>5</b>	<b>TORAH AS THE UNIFIED FIELD</b>	<b>28</b>

## 1

## TORAH, SCIENCE, AND CREATIONISM

## THREE FRAMES OF CONCEPTION AND MISCONCEPTION

The battle between Darwin and Creationism forcing classrooms and courtrooms to choose between faith and science has nothing to do with Torah. Each framework builds from non-Jewish premises.

When science<sup>1</sup> discovers the mechanics of a natural process it imagines itself to have proven the nonexistence of G-d in that realm, relegating Divinity to increasingly remote corners of reality, i.e. those areas not *yet* illuminated by the scientific mind. Wherever a natural explanation exists G-d cannot, and so it postulates a mutually exclusive relationship between science and religion.

Jewish theology asserts the opposite and practicing Jews affirm the principle in their twice daily recitation of faith (called the *Shema*), “Hear Israel, *HaShem*<sup>2</sup> our Lord, *HaShem* is one.” The two names of G-d here (*HaShem* and Lord) express two modes of Divine interaction with creation. *HaShem* (יהוה) the four-letter, unpronounceable name of G-d is the transcendent aspect of Divinity, perfect and absolute, that exists beyond time and space, and beyond name and form. Conversely, Lord (*Elokim*), is the name used throughout the creation chapter of Genesis. It refers to Divine expression that operates *within* the system of natural law that G-d devised to govern the world in accordance with His<sup>3</sup> will.

Torah teaches, through the *Shema* as its central article of faith, that the same G-d (*HaShem*) which does things that nature can’t do (i.e., miracles or creation ex nihilo) is the acting force within all that it *does* do (i.e. *Elokim*.) *HaShem* and *Elokim* are one. When science discovers the secrets of photosynthesis, the way a cell extracts energy from its food, or why it rains, they are simply articulating the mechanism of Divine manifestation as it operates through the physical world.

From a Torah perspective, as science exposes the breathtaking beauty of nature with its interpenetrating systems of such complexity that all our sophistications of technology cannot reproduce even one living cell, let alone an entire organism, it is revealing the work of a creative consciousness infinitely greater than our own. Einstein is considered the most brilliant of men because he *discovered* that  $E = mc^2$ . He did not invent it, he did not create a universe based on that principle, he simply articulated a relationship that was already there. The Nobel prize should have

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<sup>1</sup> Science is not a monolithic entity and scientists express a whole range of attitudes about these matters. Nevertheless, the popular interpretation of science which conflicts with creationism basically espouses this perspective.

<sup>2</sup> Literally, *The Name*. It refers generally to G-d in any of His myriad expressions and interactions with the world. In particular it refers to the four-letter name of G-d, called the Tetragrammaton (יהוה), which indicates His transcendent, eternal, and unknowable level of Being, as well as His immanent expression through the attribute of mercy. These four Hebrew letters contain all the permutations of the verb *to be*. Tradition teaches that *The Name* translates as *That Which Was, Is, And Will Always Be*. *HaShem* is the point of eternity that lies within each moment and each object; that which preceded creation, permeates creation, and will endure beyond its passing. G-d and *HaShem* are interchangeable.

<sup>3</sup>G-d is beyond gender, containing both male and female elements as well as levels of oneness where even the duality of gender does not exist. The essential name of G-d, indicated by *HaShem* (see footnote 2) is androgynous. It contains two masculine letters (י, ה) and two feminine letters (the two ו's). Similarly, Genesis 1:27 describes the first human as “created in the image of G-d...male and female.” The “Jewish G-d” is both male and female. Nevertheless the dilemma remains of which gendered pronoun to use when writing about G-d. The author has chosen to continue with the custom of “He” simply because changing this implies various ideological affiliations and associations that are not hers.

gone to the *One* whose wisdom conceived the idea in the first place and Who designed the universe based on that and other yet to be discovered truths. It is like giving credit *not* to the inventor but to the one who made a generic imitation when the patent expired. Einstein himself believed in G-d, as did (and do) many of the greatest minds in physics. Their faith is not contingent upon unsolved riddles in nature, rather it derives from awe and humility before creation's superhuman brilliance of design. It is no mark of intelligence to reject the notion of G-d. Many of science's masters report their experience of a living Consciousness that permeates and organizes the natural world, and whom they meet, face to face, mind to mind, as they unlock creation's secrets.<sup>4</sup>

In contrast, the Christian formulation of Biblical evolution called creationism, derived from the King James translation of Genesis, bears little, if any, resemblance to Jewish thought on the subject. It is a basic principle of Torah that every verse in the Bible has four levels of interpretation, an acronym for which is PaRDeS (Hebrew for "garden," and root of the English word "paradise").

- 1) "P" (*Pshat*) is its literal meaning and narrative intent; the plot or story line.
- 2) "R" (*Remez*) is the level of hint whereby peculiarities of grammar, spelling, syntax, and sentence structure indicate deeper levels of meaning and hidden interrelationships within the text.
- 3) "D" (*Drash*) is the homiletical level of interpretation where the entire Bible is understood as a metaphor for each individual soul's unfolding. Everyone has an aspect of Abraham that must be willing to sacrifice Isaac, every one must receive the Torah at Sinai, etc.
- 4) "S" (*Sod*) is the secret, mystical or kabbalistic level of interpretation that hints to the inner worlds, angelic kingdoms, realms of soul and mathematical intricacies of Divinity.

Translation can only access the first, or literal level of meaning. All others depend upon the subtleties of Hebrew and its weave of interconnections within the text. For this reason the Jewish calendar commemorates a yearly fast (the 10th of Tevet) to mourn the first translation of the Torah. Thus began the possibility of its misinterpretation and trivialization by those who imagine that the narrative (*pshat*) is all there is, and presume to understand Judaism without a clue to the deeper levels of interpretation essential to its teachings.

And beyond this, which applies to every passage in the Bible, the first chapters of Genesis have more commentary and mystical significance than any other section. An entire book is written on the first word alone.<sup>5</sup> The deepest mysteries of the universe derive from these portions, secrets that are not accessible in translation, nor comprehensible to those without extensive background. They require years of intensive study and only the most gifted understand them truly.

Thus creationism, though it cites the Bible as its source, is a non-Jewish phenomenon, since it does not incorporate traditional Torah commentaries and perspectives on the subject. This paper presents an orthodox Jewish perspective on Genesis, built from traditional sources, and explores its compatibility with Darwin's model of evolution.

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<sup>4</sup> Ken Wilber, ed., *Quantum Questions, Mystical Writings of the World's Great Physicists*, (Boston, MA: Shambala Press, 1985).

<sup>5</sup>*Tikunei Zohar*.

## 2

**A METHODOLOGY OF DYNAMIC PARADOX**

A Jew knows that the truths of Torah cannot contradict the facts of nature for both derive from the same source. Tradition teaches that the ten fiats, or statements of “Let there be . . .”, that called reality into existence<sup>6</sup>, correspond to the Ten Commandments which contain within them the entire fabric of Jewish theology. Though the first is an artistic reverie of creative expression and the other pedagogical with all the legalisms essential to that purpose, nevertheless they are equivalent. They each express ten modes of Divine speech, one using three-dimensional symbols, i.e. the objects of creation; the other using words (i.e. the commands of, “Thou shall...”). Each, in its own alphabet, presents the full content of G-d’s communication with creation.<sup>7</sup> There can be no contradiction between them, for both derive from the same *One* that conceived creation, birthed it into being, and revealed *His* truth, both through the symbolic structure of reality and through the prophetic revelation at Sinai.

Any discrepancy between the empirical “facts” of nature and the theological “facts” of Torah is only apparent, and resolution must be sought. The approach is twofold. First, one must examine the experimental evidence as presented by science and assess its reliability. What is fact and what is theory? What underlying assumptions might distort interpretation of the data? What is the deeper significance of the findings?

Second, one must look within the vast body of material that comprises the traditional teachings of Torah and search for supporting evidence: statements in the Bible, Talmud, Midrash, or later writings which present compatible ideas or suggest equivalent frameworks. In this way one fashions a synthesis between science and Torah, reconciling their contradictory perspectives into a larger context that holds them both. It is important to note, that nothing of science gets superadded onto the traditional system of Jewish thought, the entirety of which was revealed at Sinai, though in an exceedingly abstract and concise form. Finding correspondence between the “Torah of symbol” (science) and the “Torah of scripture” simply unpacks the dense and esoteric profundities of the Sinaic revelation, making them comprehensible to the modern mind and unlearned thinker.

This dialectical approach to resolution benefits both sides. Science becomes a hands-on model which grounds the abstractions of Torah in a more tangible form. With nature as a teaching aid, the implications of an esoteric topic can be explored more deeply. Science benefits from this methodology for when a discovery finds its niche within Torah’s all encompassing framework of cosmic truth and spiritual law its significance becomes clear, and the next research step is clarified. This is the methodology here employed to approach the conflict between Darwin and Genesis. It resolves their contradictions by identifying a context which incorporates both of their truths, and reconciles them.

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<sup>6</sup> “With ten utterances the world was created” (*Pirkey Avot* 5:11). These are the first verse of the Torah (“In the beginning...”); the eight verses that begin, “Let there be...”; and Genesis 2:18 (“And the Lord said: It is not good that *Adam* should be alone...”).

<sup>7</sup> One could say that the ten fiats of Genesis organize and express information in “Macintosh mode,” while the Ten Commandments organize and express that same information in “IBM mode.”

## 3

**DARWIN AND GENESIS: THEIR STATUS QUO**

Any resolution of science and Torah must begin by clarifying their points of disagreement and defining their terms.

*Sorting Out Their Spheres of Discussion*

What questions does each system of thought presume to answer? What range of phenomena does each address?<sup>8</sup>

**Content**

TORAH is primarily concerned with consciousness, soul, and morality. While the history it contains is accurate, this is not its primary intent.

SCIENTIFIC THEORIES on the origin of species are solely concerned with the historical development of form on this planet.

**Context**

TORAH begins with the absolute unity of the Infinite One and describes the subsequent process of creation and unfolding of diversity. It goes forward in time, from “above” to “below.”

SCIENTIFIC THEORY on the origin and propagation of life takes our present experience of diversity and extrapolates a hypothetical origin and process. It goes backward in time, from “below” to “above.”

**First Cause**

TORAH is premised entirely on the assumption of One G-d as architect and creator of the universe.

SCIENCE is a-religious. Proposing no theory of first cause, it neither affirms nor refutes the concept of deity.

**Author**

TORAH’S creation narrative begins in the super-conscious, supra-rational omniscience of G-d.

SCIENTIFIC EVOLUTIONARY THEORY originates in the experience and rational mind of man.

*Clarifying Terminology*

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<sup>8</sup> The author wrote a previously published article on evolution, and sometimes borrows ideas from this work without formally quoting them. The article is: Susan Schneider, “*Evolution—Form and Consciousness*,” *B’Or HaTorah*, Number 4, 1984, pp. 15-16.

Next one must rigorously determine what the term “evolution” means within each framework.

## SCIENCE

Darwin’s **specific theory of evolution** (or micro-evolution) states that as a species adapts to a changing environment, utilizing the mechanisms of random mutation, natural selection, and survival of the fittest; its form and features evolve. It is possible that, at some point, a new and reproductively isolated species *may* arise, though this phenomenon has not yet actually been observed. Darwin’s specific theory of evolution describes how changes take place in an already established species but makes no retroactive assertion about how that animal type itself came into being.

Darwin’s **general theory of evolution** (or macro-evolution) extends the previous theorem to describe the origin of life and appearance of all known creature-types. Thus it postulates that the various species themselves also evolved from a common ancestor, branching forth from simple to complex, with all their astounding diversity, through a similar process of random mutation, natural selection, and survival of the fittest.

## SCRIPTURE

Torah’s notion of **spiritual evolution** teaches that in every instant the universe progresses toward perfection. This is true collectively and individually. Whether from choosing good, or suffering the purging consequences from choosing the opposite, progress happens. There is no exception. There is no moment that stands outside G-d’s will for creation to realize its perfection. This is an evolutionary process: who we are now is the raw material for who we will become. There is always motion and only progress (though appearances may be to the contrary.) This evolutionary progression began before Genesis and will extend beyond the Messianic end-of-days.

Torah’s **physical evolution**, as articulated in Genesis, presents an evolutionary-like sequence of creation whereby “each day introduces a qualitatively higher level of life form.”<sup>9</sup>

Both science and Torah employ a concept of evolution to describe the mechanics of growth and change in the physical world. Its fact is undeniable. For human beings, change and evolution are nearly synonymous. In every realm—spiritual, cultural, technological, psychological, physiological—growth imitates the evolutionary model. Sometimes graduated, sometimes punctuated, it moves persistently and progressively forward, stage by stage, each emerging from the last, toward increasing sophistication and perfection; there is no contention on this point. The difficulty arises when exploring the question of how life arose on the planet and how the variety of creatures (and particularly man) came into existence. Here the accounts of Torah and Darwin appear to diverge.

### *Identifying Points of Conflict*

Let us clarify their points of disagreement, which are four.

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<sup>9</sup>Meir Leibush Malbim, *Beginning and Upheaval*, trans. Zvi Faier (Jerusalem: Hillel Press, 1978), Genesis 1:25b.

## 1. Time Frame

EVOLUTION, as defined by neo-Darwinian scientists, requires a time span of four and a half thousand million years, and it cites carbon dating of fossil records to prove that planetary history extends back at least that.

TORAH dates the appearance of the first *Adam* at 5748 years ago (as of 1988), and teaches that the entire creative process (preceding and including this *Adam*) occurred in seven “days.” Its history of the universe is thus: 5748 years + 7 creation days.

## 2. Ancestry

EVOLUTION teaches that each species evolved from a previous one and that all the diversity of life arose from a common, single-celled ancestor.

TORAH seems to indicate that the broad categories of animal types arose discretely, by Divine decree, each as an independent lineage with no common ancestry.

## 3. Man from Monkey

EVOLUTION teaches that human beings evolved from the gene pool consisting of monkeys and apes, through the same process of random mutation and natural selection that generated all preceding life forms.

TORAH teaches that “G-d formed *Adam*.<sup>10</sup> (of) the ground and breathed into his nostrils the breath of life; and *Adam* become a living soul.”<sup>11</sup> This implies that the human being is unique and was created differently from all other creatures.

## 4. Random and Arbitrary Development

EVOLUTION teaches that the types of creatures that appeared, emerged out of a random, arbitrary process with each stage determined by chance events.

TORAH teaches that creation’s design on every level from cosmological to submolecular, is specified by the Creator; nothing (neither creature nor event) exists except that G-d wills it to be so.

### *A Jewish Understanding of Genesis: The Basics of Creation Exegesis<sup>12</sup>*

In order to compare the creation accounts of Darwin and Genesis, one must understand how Judaism reads the relevant scriptural passages. This is not generally known, outside its circle of scholars and orthodox practitioners. Consequently, the last preliminary is to present Judaism’s

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<sup>10</sup> *Adam* is not male. Rather he is male and female joined. The Torah initially describes the creation of the first human being as follows (Gen. 1:27): “And G-d created Adam in His own image. In the image of G-d He created him, male and female He created them.” Jewish tradition teaches that the first human being was a kind of androgyne, combining both male and female elements. Again the question arises of generic pronouns. The author has a correspondence course in which the odd lessons are written in generic “she” and the even ones in generic “he.” In this paper she italicizes any reference to the primordial, androgynous *Adam*, refers to him as “he” and uses the masculine impersonal pronoun, for the reasons mentioned in footnote 3.

<sup>11</sup> Genesis 2:7.

<sup>12</sup> Most of the ideas in this section come from Rabbi Eliyahu Dessler’s discussion of the subject in: *Michtav M’Eliyahu*, Vol. II, pp. 135-145.

understanding of creation's first seven days, the most simple interpretation of which indicates that these events took place on another plane of reality altogether.<sup>13</sup>

Tradition teaches that the entire creation chapter *did* actually happen *and* in a physical sense, but on an entirely different level than what we now understand as the physical plane. Only after Adam and Eve ate from the Tree-of-Knowledge-of-Good-and-Evil, and the world turned inside out and upside down, did reality become as we know it today.

Good and evil existed in Eden, but each in a sphere unto itself. There was the territory of holiness and the territory of impurity, and they did not mix. *Now*, they are always intermingled. In our world there is no good without evil and no evil without good, but this was not always so. Adam and Eve were pure, saintly beings without a trace of impurity. *We*, on the other hand, experience inclinations both toward good and toward evil; both toward spiritual service and toward self-indulgent gratifications. *Their* only impulse was to serve G-d. Evil existed in Eden, embodied as the serpent, a creature outside themselves.

To eat from the Tree-of-Knowledge-of-Good-and-Evil was to bring an intermingling of good and evil *into* themselves — into the very substance of their being. This fact is communicated by the tree's name, for "knowledge" in Hebrew is also a euphemism for sexuality ("And Adam *knew* Eve . . ."). Knowledge is a particular faculty of mind distinct from wisdom and understanding. It describes the internalization of information so deeply that it integrates into one's flesh. One's instinctive and reflexive behavior is conditioned by its truth (or falsehood as the case may be). Adam and Eve "imbibed" the "knowledge of good and evil" and thereby brought the intermingling of good and evil *into* themselves, into their intrapsychic realms where before only holiness dwelled. The entire world was affected, and from that time onward, every good contains at least a trace of evil, and vice versa.

What does this mean? Evil, in Judaism, is the *illusion* of separation and independence from G-d. The word "illusion" is significant. Nothing can actually be separate from G-d for G-d is one. To the extent that something presents the appearance of self containment, self sovereignty, and multiplicity, to that extent it partakes of the quality of evil. To the extent that it communicates through itself the truth of G-d's goodness, oneness, compassion, and generosity, to that extent it partakes of the quality of holiness.

Evil expresses itself differently on each plane, whether physical, emotional, mental, or spiritual. The manifestation of "evil" (or separation from G-d) through physical substance is the fact of its boundedness. Matter has outline. Physical objects have "skins" or "shells" which delineate them from everything else. A book is distinct from the table, which is distinct from the chair, which is distinct from me, which is distinct from you. Matter presents the appearance of separateness. It takes a penetrating, spiritual eye to see beyond the surface of things and discern the pattern of unity that connects our reality. The outer eye sees multiplicity, a jumble of self-contained and independent units. Our physical world is a product of Adam's eating from the Tree-of-Knowledge and the subsequent intermingling of good and evil that transpired. In this sense it bears no resemblance to the physical reality of Eden and the seven days of Genesis.

Both pre and post Edenic realities were physical, yet the term means something different in each context. It is as impossible for us to imagine Edenic physicality as for a blind person to conceive of

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<sup>13</sup>See Rashi quoted on p. 12. Additionally, Kaballa explains that the densest plane of Edenic reality was thought (called the world of *briyah*) In other words, the "stuff" of bodies was thought form.

color. Nevertheless, light is the element in our world with properties most similar to “matter” then:<sup>14</sup>

1. It is the most subtle and tenuous of all perceptible phenomena.
2. It is emitted from a luminary without ever becoming separated from it.
3. Light spreads (apparently) instantaneously
4. Light does not mix and intermingle with other substances.
5. Light, per se, never changes.
6. It exists as a continuum of frequencies each appearing as a different color.
7. It is both wave-like and particle-like simultaneously.

It is thus more accurate to imagine the “bodies” of Eden as light-like, translucent, radiant and unbound, totally different from the opaque and limited physicality we experience today. Midrashim support this interpretation:

Rebbe Meir comments on Genesis 3:21<sup>15</sup> (based on the homonymity of the word for light, *ohr*, and the word for skin, *'ohr*): Originally *Adam*'s body was made of light (אור). But after he sinned G-d clothed his body [in a thick, opaque covering called] skin (עור).<sup>16</sup>

And further:

The heels of *Adam*'s dead body were like two radiant suns.”<sup>17</sup>

Rav Dessler elaborates: If his heels shone thus, imagine the light of his head...and even more before his death... and even more, before he sinned. This is the Midrashic way of teaching (in about 200 C.E., and approximately 1700 years before Einsteinian relativity) that *Adam* and *Eve* were bodies of light.

The first human being spanned from the heavens to the earth, and from one end of the world to its other end.<sup>18</sup>

Our sages explain this to mean that *Adam* contained the universe *within* himself. Not like now where humans are little creatures moving within a huge cosmos. Rather *Adam* was a single, all inclusive entity. The other creatures and kingdoms in Eden were layers and organs within his universe-encompassing “body.”

So awesome and god-like was this *Adam* that the angels actually erred and started to praise *Adam* as though he were G-d.<sup>19</sup>

Thus while the first chapters of Genesis describe real events, with physical counterparts, and all is literally true, the words themselves have coarser connotations in our post-Edenic world. The Biblical terms are homologous, not synonymous. Yet their correspondences are the only way for us to bridge the discontinuous break in reality, the shattering and reconstituting of existence, that

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<sup>14</sup> Rabbi Joseph Ergas, *Ikkarim* II:29.

<sup>15</sup> “And the Lord G-d made for the man and his wife garments of skin and clothed them.” The word for *light* and the word for *skin* sound alike, only the first has an א as its first letter, while the latter has an ע.

<sup>16</sup> *Bereshit Rabba* 20:29.

<sup>17</sup> TB *Baba Batra* 58a.

<sup>18</sup> TB *Chagiga* 12a.

<sup>19</sup> *Bereshit Rabba* 8.

transpired after Adam's eating from the Tree of Knowledge. The Midrash comments on Genesis 2:8.<sup>20</sup>

His (*Adam's*) stature shrank to a hundred cubits . . . "Yesterday [you extended] from one end of the world to the other whereas now [you can hide] 'Among the trees of the garden.'"<sup>21</sup>

## 4

# EXPANDING HORIZONS: THE FRONTIERS OF RECONCILIATION

Now that terms are defined, points of conflict delineated, and the Jewish interpretive approach clarified, we can examine the differences between science and Torah point by point and negotiate a reconciliation.

### *Time's Relativity*

Rashi's<sup>22</sup> commentary, the most traditional interpretation of the Torah, teaches that:

The separation between day and night (as we know it) was not made until after the first Sabbath. Throughout the seven days of creation, the primeval light and primeval darkness served together, both by day and by night" (Rashi on Genesis 1:4).

Whatever this literally means, it certainly indicates that just as physical reality was of a totally different order in Eden, so was time completely unlike its expression today.

The dictionary defines time as a "nonspatial continuum in which events occur in apparently irreversible order from the past, through the present, to the future"<sup>23</sup> In other words, time marks a sequence of change and progress. Any system undergoing movement or transformation is happening within a framework of time. Only the most transcendent, static, and eternal point of Divinity is time-less.

Einstein showed that time is relative. It stretches and shrinks according to one's speed and the properties of one's immediate environment. Yet one must be traveling near the speed of light to distinguish this. Thus, practically, time "moves" at a constant pace. Its stability is such a cornerstone of our experience that it becomes difficult to imagine the principle of time's elasticity. Yet there is an analogy, for our *experience* of time is also relative. Dream time is different from clock time. In turn, they differ from personal time, which lengthens or shortens according to interest or boredom. When a lot of change takes place it feels as though time has moved more quickly, and when nothing much is happening, time's pace all but grinds to a halt.

*Rashi* explains that the first seven days occurred within an entirely different time system. It is homologous to our own in that it marks a process of change and transformation, yet its units are not

<sup>20</sup> "And the man and his wife hid themselves from the presence of the Lord G-d amongst the trees of the garden."

<sup>21</sup> *Bereshit Rabba* 19:8.

<sup>22</sup> *Rashi* is the acronym for Rabbi Solomon Isaac, the authoritative interpreter of scripture according to the Oral Tradition originating with Moses at Sinai.

<sup>23</sup>The American Heritage Dictionary of the English Language, ed. William Morris (Houghton Mifflin Company, 1971).

equivalent. The standard unit of change in our time frame is a single rotation of the earth around its axis that creates a cycle of evening-night-morning-day-evening, called a day. This is our international time standard because its sequence of change is the most objective, universal, and stable known.

According to Nachmanides (and discussed by Rav Dessler), the basic unit of change in creation's time frame was the "revelation of a new mode of Divine conduct in the world."<sup>24</sup> This defined a day. Some particular aspect of Divinity completed its transition from potentiality to actuality, from concealment to expression. In Hebrew, the etymological root for evening (*erev*) means confusion and intermingling; whereas the root for morning (*boker*) means to examine, inspect and scrutinize.<sup>25</sup> One could thus translate the phrase, "And there was evening, and there was morning, day . . ." as: "First there was a confused mixture (*erev* / evening), and then the physical and spiritual creatures of that day precipitated out, now becoming visible, tangible, and scrutinizable (*boker* / morning)." The completion of a full cycle, wherein a quantum unit of Divine expression was birthed into existence, constitutes "a day."

In the [mystical classic] *Sefer HaBahir* of Rabbi Nehunia ben HaKaneh the question is asked: "Why does it say, "Because six days did G-d make heaven and earth?" Surely it should rather have said 'in six days...' It answers, "This teaches that each day possesses its own power." The meaning is that each "day" is a creation in its own right. This is why it says, "Six days did G-d make" (i.e. not what happened on the days, but the days themselves were what G-d made.) Thus each day possesses its own power or spiritual content, its own unique mode of revelation.<sup>26</sup>

Remember that all this happens outside our three dimensional, earthbound, post Edenic reality, in a time frame that transcends our own. Only after *Adam's* eating from the Tree of Knowledge does creation collapse into its now familiar form. In the Biblical sequence of events, this "fall" happens between the eve of that first Shabbat and its conclusion.<sup>27</sup> The material world as we know it came into being at this point and the entire time scale of physical evolution (and even cosmology) fits within this single and final frame of the seven day sequence of events in Genesis. This means

<sup>24</sup> Dessler, II:151.

<sup>25</sup> צוואת הריב"ש ד"ר ע"א, לק"א ד"ח ע"נ ד"ה יחשוב (מצוטט בבעש"ט על התורה ד"י ט).

<sup>26</sup> Eliyahu Dessler: *Michtav M'Eliyahu*, Vol. II (p.151).

<sup>27</sup> It is not clear whether the Fall took place before *shkiah* (actual sunset), during *bain hashmashos* (the intermediate period after the sun has set but the sky is still light), or during Shabbat itself; though the withdrawal of the *ohr ganuz* (the primordial light to which Rashi refers, see p. 12, the expulsion, and actualization of the curses did not take place until after Shabbat. It appears that the "Ten things that were created on Sabbath eve before twilight . . ." (Avot 5:18) were a consequence of Adam and Eve's eating from the Tree of Knowledge and so were transitional to the subsequent physicalization of reality. Generally this *Mishna* is interpreted to mean that the supernatural quality of these ten things derives from their relationship to Shabbat, and their worldly aspect comes from their connection to the weekday, but actually it seems the opposite. The six days (as described above) existed in the most rarefied realm of physicality — a light-like, unified reality where only holiness reigned. When Adam and Eve sinned, reality fractured, and the "Sabbath of Sabbath's" (the final Shabbat, called, "the day that is totally Sabbath and peace for ever more") split off, and only in the future will this higher dimensional universe be attained. The actual level of Sabbath experienced by Adam was of a much lower order of existence after he had sinned, and "his eyes were opened," and "his stature shrank to ten cubits," and he was given "garments of skin." Thus the *Mishna* might indicate how the spiritual quality of these ten things came from their connection to the original six (and nearly attained seventh) supernal days of creation and their physical aspect derived from the recreation of reality that happened either before or during Shabbat. As physical entities, their existence of these ten things only became necessary not that sin would be a part of the world. They have one foot in the "sinless" holiness of the first six days; thereby connecting it to the lower physical reality that was to come.

There is no contradiction to the obligation of resting from creative work (which is the definition of Shabbat), for the process of collapse and reconstitution of reality does not require actual *malacha* (creative work). It is more like a Shabbat clock — the laws are set, the rug is pulled out from under, and reality falls into its new position. It is an unwinding of effects and consequences, and not the manifestation of direct intervention (see Rambam, Guide to the Perplexed, I:67).

that when scientists discuss physical evolution they are not even describing the progression of creation summarized in the first six days, but the “phase change” that occurred in the final “hours.”

Biblical creation is above time as we know it. Every non-temporal act is interpreted in our frame of reference as an infinite time sequence. This is the reason why scientists interpret creation as a process of evolution extending over eons of time.

Since creation does not take place in time (as we know it), we must ask why the Torah describes it as taking six days. The answer is that the Torah wishes to teach us a lesson in relative values. Everything has value only in relation to its spiritual content. Vast physical masses and huge expanses of space and time are of little significance if their spiritual content is small. The whole physical universe exists as an environment to the spiritual life of the human being; this is its spiritual content. When interpreting non-temporal creation in temporal terms, the Torah deliberately contracts the time scale compared with the scientist’s scale. The Torah thus conveys the relative insignificance of the material creation compared with the spiritual stature of humanity [and the possibility of conscious spiritual transformation that now becomes possible with the appearance of the human kingdom].<sup>28</sup>

The only thing we know about this collapsing and reconstituting of reality is that it followed the same sequence described in Genesis. “As above, so below.” Anything true on one level of reality has a corresponding truth on every other level.<sup>29</sup> There are thus two possibilities of reconciling the Darwinian and Biblical time frames:

- The post Edenic collapse of reality, which recapitulated the six day sequence described in Genesis, may have happened instantaneously. This would mean that what scientists call temporal distance is really an artifact of hierarchical distance, i.e. the relative relationships of things within Edenic reality.
- Or, perhaps the Fall occurred over vast eons of time exactly as science speculates.

The truth is not clear for the evidence is not definitive. Whether carbon dating proves to measure fact or artifact is irrelevant to Torah, for both possibilities are compatible with the seven “day” framework specified by Scripture.

The important point is that from the appearance of *Adam* as a physical entity, 5748 years have elapsed (as of 1988). But who and what is *Adam*? The term is *not* synonymous with the anthropological human being called *Homo sapien*. The scriptural title, *Adam* refers to a creature of sufficiently refined nature to be able to express the level of consciousness called *yechida*, which is defined as the capacity to understand what it means that G-d is one on the deepest possible level.<sup>30</sup> The point at which Adam and Eve, the last creatures in the sequence of creation, appear fully reconstituted, in post-Edenic reality, completes the “fall,” and the Jewish counting of years begins.<sup>31</sup> At that point the time frames of science and Scripture link; Torah “adopts” the international time standard and their terms become equivalent.

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<sup>28</sup> Rav Eliyahu Dessler, *Collected Essays and Notes* (London, 5719) and reprinted in *Challenge: Torah views on science and its problems*, eds. Aryeh Carmel and Cyril Domb (Feldheim Publishers, Jerusalem, 5738/1978).

<sup>29</sup> Zohar II:20a.

<sup>30</sup> *Yechida* means literally, single and united. It is the highest of the five levels of soul. It is the point which is actually unified and identified with *HaShem*. It bestows the capacity to experience Divine oneness on the deepest possible level.

<sup>31</sup> It is interesting to note that science dates the appearance of writing at exactly this time “The earliest evidence of writing dates back about 6,000 years to the emergence of large city states. (Merlin Donald, *Origins of the Modern Mind* (Harvard University Press, 1991) p. 278.) Just as the level of consciousness anthropologists call *Homo sapien*, has certain physical traits that

Jewish law and metaphysics have always attributed practical significance to the presence or absence of a (legally acceptable) witness. Thousands of years before quantum mechanics, Judaism understood that reality is not actually created until it is witnessed. There are many examples of this in its legal teachings. For example, at various stages from the point of conception throughout gestation, certain levels of soul (i.e. capacity for consciousness) enter the fetus. Nevertheless, until the *neshama*, or fully human level of soul enters, the child is a lower life form than the mother and one is permitted to kill the child to save the mother. But once the crown of the child's head appears in the birth canal, witnessed by others, the child assumes full legal status as a human being with rights equal to the mother, and neither may be sacrificed for the other. This legal ruling has very sophisticated implications and metaphysical underpinnings that Quantum Mechanics is only beginning to explicate.

The point is, that according to Jewish law, *Adam* is the first legally acceptable witness. The reality of history as a legal fact and metaphysical truth begins there. This is not just a play of semantics or a legal fiction, modern science itself teaches that reality is fundamentally affected by its witness. Torah asserts that countable history begins only at the point that it is "seen" by a witnessing consciousness on the level of *Adam*. Before this, no quantitative comparisons can be made between the creation story of Genesis and the carbon dating of science.

### *Kinship In A Multidimensional World*

Regarding the question of ancestry, the claims of science are somewhat precarious. Darwin proposed his specific theory of evolution based on observations of distinct, yet intimately related species scattered throughout the Galapagos Islands. Struck by the patterns of intra and inter species variations, he concluded that they must have descended through gradual modification from a common ancestor. He proposed his theory of micro-evolution, whereby members of a species adapt differentially to changing environments and gradually develop variations in appearance, perhaps even evolving into reproductively isolated groups.<sup>32</sup>

The doctrine of "fixity of species" that had been an inviolate principle of zoology, was overthrown. The evidence for Darwin's theory of micro-evolution was (and is) compelling. Yet the leap from there, to the grand scale where he postulated that all forms of life evolved by similar means, a theory implying that all the major divisions of animal types had been built up by an evolutionary process, was highly theoretical. No evidence of this was (or has been) observed, but the theory seemed plausible because once the doctrine of "fixity of species" had been challenged on a small scale, there was no reason to assume that it still held for major divisions either.<sup>33</sup>

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accompany it and which enable its classification; perhaps the level of consciousness associated with the Torah's definition of *Adam* is linked to the capacity for writing.

Alternatively, it would appear, according to Bereshit Rabba 6:2, that the appearance of man in the scriptural sense of the word, fully reconstituted in the material world, is marked by the point that man created fire from flint. "Though the luminaries were spoilt on the eve of Sabbath, yet they were not smitten until the termination of Sabbath . . . when the sun sank at the termination of Sabbath darkness began to set in. Adam was terrified . . . what did the Lord do for Him? He make him find two flints which he struck against each other; light came forth and he uttered a blessing over it . . ." Thus G-d's first creation, on day one, was light. Now man must reproduce the entirety of creation from his efforts below, and *his* first creation is also light (fire), and also on day one.

The reconciliation of these two clues would make a fascinating study.

<sup>32</sup> Michael Denton, *Evolution: A Theory in Crisis* (Burnett Books, Hutchinson Publishing Co. 1987).

<sup>33</sup> Denton, Chap. 1.

Darwin himself repeatedly acknowledged that his general theory of evolution was conjectural. Relevant data was lacking, whether for support or refutation. Nevertheless, the theory seemed scientifically plausible and intellectually satisfying, and the only conceivable natural explanation for the origin of life and species. In Darwin's own words:

Geological research, though it has added numerous species to existing and extinct genera, and has made the intervals between some few groups less wide than they otherwise would have been, yet it has done scarcely anything in breaking the distinction between species, by connecting them together by numerous, fine, intermediate varieties; and this not having been affected, is probably the gravest and most obvious of all the many objections which may be urged against my views.<sup>34</sup>

Darwin was timid in his defense of the theory of macro-evolution given its lack of empirical support at the time it was proposed. He assumed that in the years to come, more evidence would be gathered from fossil records, comparative anatomy, and embryology to support macroevolution's claims. The exact opposite has been true, and dramatically so. Fossil records still provide no evidence of the transitional forms (whether gradual or punctuated) essential to macro-evolutionary theory, while embryology, biochemistry, and genetic mapping eliminate many of the ancestral lines postulated from external anatomy (as well as the likelihood of others arising). Evolution is truly a "theory in crisis" with mounting evidence discrediting its claims, and many reputable scientists are doubting its validity. Yet, since no alternative, and rationally satisfying explanation exists, scientists are in the embarrassing position of defending a theory that violates their own first principle: the primacy of empiricism.

Undoubtedly, one of the major factors contributing to the immense appeal of the Darwinian framework is that, with all its deficiencies, this model is still the only one ever proposed that invokes familiar physical and natural processes as the causal agencies of evolutionary change; Darwinism, therefore remains the only truly scientific theory of evolution. It was the lack of any obvious scientific alternative that was one of its great attractions in the nineteenth century and has remained one of its enduring strengths ever since 1859. Reject Darwinism and there is no scientific theory of evolution.<sup>35</sup>

It is important to emphasize, that Torah is not intrinsically incompatible with Darwin's theory of macro-evolution. Scripture does not present the details of how G-d implemented His will to bring forth the effulgence of life with all its varied levels of complexity. Any number of scenarios are consistent with Scripture, including Darwin's evolutionary model.

For example, the rabbis teach:<sup>36</sup> "Genesis presents an evolutionary-like sequence of creation whereby each day introduces a qualitatively higher level of life form."

The only thing that Torah discloses about the mechanism [of this progressive development] is that it involved a partnership between G-d and the earth (i.e. nature)," as it says, "Let *us* make man in *our* image . . ." (Genesis 1:26). Both earth and the Creator collaborated to produce man. The earth brought forth his body, *just as it did the bodies of all other creatures*, and G-d infused him with the intellectual soul.<sup>37</sup>

<sup>34</sup> Charles Darwin, *Origin of the Species* (Collier Books, New York 1972) p 41.

<sup>35</sup> Denton, p. 355.

<sup>36</sup> Malbim, Genesis 1:25b.

<sup>37</sup> Malbim, Genesis 1:26.

Malbim implies here that whatever the “earth” did to formulate the bodies of other creatures, so it did in the formation of man. Nevertheless, “the earth’s capacity is restricted to yielding his anatomical structures...while it is within *HaShem*’s power alone to imbue creatures with the breath of life.”<sup>38</sup> And furthermore, the earth itself is a creation of G-d. Its “side of the bargain” is simply an *indirect* expression of Divinity, operating through the medium of nature and natural law (in the mode of *Elokim*, as discussed above.)

At the same time, Torah does not need evolutionary theory to support its own assertions. It is as unthreatened by its refutation as by its confirmation. Either option fits with Genesis. There is no motive to force the evidence into some preconceived conclusion. From this perspective, free of ulterior motive, it is possible to examine the evidence, and determine, based on the criteria of truth alone, whether Darwinian axioms hold up to the scrutiny of scientific proof.

At this moment in scientific history (1988), there is an acute lack of empirical support for Darwin’s General Theory of Evolution. The model is intellectually compelling, but evidentially lacking. Perhaps another paradigm could be found that would be as aesthetically satisfying, and yet more consistent with the facts at hand. This paper proposes an alternative story of life’s development based upon String Theory, a mathematical description of the universe now embraced by physicists as the most promising candidate to unify all the laws of physics into a single principle (formula) from which derive all the forces (and constants) of nature.

A fresh, brilliant theory is rapidly overturning cherished but obsolete notions about our universe and replacing them with new mathematics of breathtaking beauty and elegance. Although there are still some unresolved questions concerning this theory, the excitement that it has stirred up among physicists is palpable. Throughout the world, leading physicists are proclaiming that we are witnessing the genesis of a new physics.

This theory is called Superstrings, and a series of astonishing breakthroughs in physics within the last decade have culminated in its development, indicating that perhaps we are finally closing in on the unified field theory: a comprehensive, mathematical framework that would unite all known forces of the universe.<sup>39</sup>

This slight adjustment in our understanding of the fundamental constituents of matter—that they are strings instead of points, has revolutionized modern physics in welcomed and not so welcomed ways. On one had, superstrings is stunning in its ability to resolve most of the major problems of 20<sup>th</sup> century physics: It reconciles Einstein’s relativity with Quantum mechanics, it predicts the pattern and properties of our fundamental particles, it integrates all four fundamental forces... On the other hand, all this only happens if one posits that there are ten spatial dimensions in the universe plus time which totals eleven. This is a less welcomed feature of the string theory, for it grates against our common sense experience of the world, as well as all the empirical evidence from time immemorial. As long as we have studied the world with all our high powered detectors, we have only encountered four dimensions, three of space and one of time.

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<sup>38</sup> Malbim, Genesis 1:25

<sup>39</sup> Dr. Michio Kaku and Jennifer Trainer, *Beyond Einstein: The Cosmic Quest for the Theory of the Universe* (Bantam New Age Books 1987) p.195.

String Theory teaches that the universe originally existed in ten spatial dimensions<sup>40</sup> (seven of which collapsed into a nearly infinite array of subatomic sized knots, leaving only four still active. These are the dimensions with which we are familiar: length, breadth, height, and time. These four dimensions had seemed quite sufficient to explain all the relevant factors of both science and daily life. This is no longer so. The mathematics of String Theory only works if one posits the universe as ten dimensional (though six are curled up so tightly that they exert minimal influence on our world.) The compelling success of String Theory to integrate the widest variety of phenomena into a single equation has forced physicists (quite reluctantly one might add) to seriously consider the hypothetical properties of a multidimensional universe. How can one even begin to conceive of more than four dimensions? What would such a world look like?

The simplest way to understand higher-dimensional universes is to study lower-dimensional universes. The first writer to undertake this task in the form of a popular novel was Edwin A. Abbott, a Shakespearean scholar who in 1884 wrote *Flatland*—a Victorian satire about the curious habits of people who live in two spatial dimensions.

Imagine the people of flatland living, say, on the surface of a table. This tale is narrated by the pompous Mr. A. Square, who proudly tells us of a world populated by people who are geometric objects. In this stratified world, the women are Straight Lines, workers and soldiers are Triangles, professional men and gentlemen (like himself) are Squares, and the nobility are Pentagons, Hexagons, and Polygons. The more sides on a person, the higher his social rank. Some noblemen have so many sides that they eventually become Circles, which is the highest rank of all.

Mr. Square, a man of considerable social rank, is content to live in the pampered tranquillity of this ordered society, until one day strange beings from Spaceland (a three-dimensional world) appear before Mr. Square and introduce him to the wonders of another dimension.

For example, the people of Spaceland, when they look at Flatlanders, see inside their bodies and view their internal organs at once. This means that the people of Spaceland, in principle, can perform surgery on the people of Flatland without cutting their skin. What happens when higher-dimensional beings enter a lower-dimensional universe? When the mysterious Lord Sphere of Spaceland enters Flatland, Mr. Square can only see circles of ever-increasing size penetrate his universe. Mr. Square cannot visualize Lord Sphere in his entirety, only cross-sections of his shape.

The Lord Sphere even invites Mr. Square to visit Spaceland, which involves a harrowing journey where Mr. Square is peeled off his Flatland world and deposited in the forbidden third dimension. However, as Mr. Square moves in the third dimension, his eyes can see only two-dimensional cross-sections of three-dimensional Spaceland. For example, when Mr. Square meets a Cube, he sees it as a wondrous object that appears as a square within a square that constantly changes shape as he looks at it...

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<sup>40</sup> Torah also works with ten dimensions (and 26). The most basic model of reality is called *The Tree of Life* which contains ten spheres (or channels) in highly ordered arrangement. Tradition teaches that this configuration exists at the heart of every piece of existence, from the most subatomic matter to the most sublime extremities of the universe, from the world of nature to the world of angels and beyond. It is the universal map that describes the elements that are necessarily present in any point of focus from pinhole to cosmos. Secondly, the number 26 is the numerical equivalent of the most holy and unspeakable name of G-d, the Tetragrammaton (see footnote 2). Its letters actually superimpose onto the *Tree of Life* and so the 10 and the 26 are two perspectives of the same thing (i.e. the whole). There is no question that the two most significant numbers in Jewish metaphysics are 10 and 26.

The Flatlander can visualize only two-dimensional cross-sections of our universe. As the Flatlander moves in three dimensions and his eyes scan cross-sections, he sees shapes suddenly appear, grow and shrink, change color and then suddenly disappear, defying all the laws of physics of Flatland. For example, think of an ordinary carrot. We can visualize a carrot in its entirety, but a Flatlander cannot. If a carrot is sliced into many circular pieces, a Flatlander can visualize each slice, but never the entire carrot. When the tip of the carrot enters his field of vision, the Flatlander will suddenly see a small orange circle materialize from nowhere. As the Flatlander continues to drift, he will see the orange circle gradually getting bigger. Of course, the Flatlander is only seeing each successive slice of the carrot, which corresponds to circles. Then, the Flatlander sees the orange circle turn into a green circle (which corresponds to the green carrot top). Then suddenly the green circle disappears just as mysteriously as it appeared. Similarly, if we were to encounter a higher dimensional universe, we would see objects suddenly appear, change color, grow and shrink in size, and then suddenly disappear. Although we might understand that these various objects were actually part of one higher dimensional object, we would not be able to visualize this object completely, or what life would be like in higher-dimensional space.<sup>41</sup>

This description of a multidimensional universe encountering a lower one, is nearly identical to the Midrashic accounts of the transformations caused by eating from the Tree of Knowledge. Both (together) suggest an exciting and plausible context for reconciling the paradox of evolutionary theory which is stated thus:

- On one hand there clearly exists a hierarchical and sequential progression of complexity in lifeforms, implying a familial and evolutionary-like relationship between them.
- On the other hand we cannot deny the almost total lack of evidence to support an interconnecting continuum whereby simple forms evolved into more complex ones (whether gradually or by a reasonably punctuated path of biological development). The fossil record does not support the Darwinian model, and current genetic research seriously challenges its feasibility.

Combining the truths of Torah with the models of science, a compelling and intellectually satisfying scenario emerges. As seen, the sages depict Eden with terms that clearly indicate that it was a multidimensional state. The lowest, densest layer of physicality was light-like and the entirety of creation was a single coordinated, living entity called *Adam*. Unlike our world with a myriad of independent and disconnected creatures moving within it, Eden was different. Not only did, “*Adam* span from the heaven to the earth and from one end of the world to its other,” but he (*Adam*) “included within himself the entirety of creation.” He *was* the whole universe. All other creatures were simply externalized aspects of his own inner nature. As impossible as it is for a flatlander to conceive of three-dimensional space, or a scientist to conceptualize a world of ten, we cannot imagine the reality of Eden and the first *Adam*.

These teachings of the sages on Genesis solve the mystery of evolutionary development. After Adam and Eve ate from the Tree-of-Knowledge, good and evil became intermingled (as discussed) and Eden fell into our own four dimensional universe, the world that we still live within today. That singular, unified, and multidimensional Eden collapsed into the “Flatland” of our world. The accounts of Torah and science concur both on the fact of this collapse and the drastic transformations that ensued:

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<sup>41</sup> Kaku and Trainer, pp. 164-170.

*HaShem* spoke to *Adam*: Yesterday you extended from one end of the world to the other; now, “You can hide yourself among the trees of the garden.”

Yesterday *Adam* contained the “trees” within himself, now they tower above him and he moves beneath and within them. Similarly, physicists describe this event:

Like a dam bursting, the ten dimensional fabric of space-time ruptured violently and rapidly reformed into two separate universes of lower energy: a four dimensional universe (our own) and a six dimensional one [curled up in a collapsed knot, within it]...In this picture, the Big Bang and the expanding universe are, in some sense, nothing but the debris left over from a titanic rupture in the structure of space-time itself.<sup>42</sup>

The metaphor of Flatland applies. When “Lord Sphere” entered “Mr. Square’s” two-dimensional world, he appeared as a series of discrete and apparently disconnected cross sections. His integrity as a self-contained and singular entity could not be conveyed through the medium of two dimensions and instead, what registered was a progression of circles, each similar, but apparently unrelated to the next.

This accords with the empirical evidence of paleontology and biology and it explains why there exists a hierarchy of species in our world and yet there is no evidence of transitional forms. *The various animal types, in their linear and hierarchical relationships, are actually four dimensional cross sections of Edenic reality.* They are the way we, as Flatlanders, perceive that higher dimensional universe. This world (and our earthbound perceptions) cannot accommodate its unified integrity. Rather it is reduced to related but disconnected slices, each appearing as an entity unto itself.

The zoologist observing these obviously related yet apparently discreet animal types:

...sees shapes [i.e. species] suddenly appear, grow and shrink, change color and then [sometimes] suddenly disappear [into extinction]. Even if he were to understand [i.e. intellectually, from the sages] that these various objects were actually part of one higher dimensional object, he is unable to visualize this completely, or imagine life in a higher dimensional space.”<sup>43</sup>

Thus what appears to be an evolutionary progression of life from simple to complex, is the way this collapsed and four-dimensional world perceives Edenic reality. The creatures of our world did not originate here but they existed as limbs and organs within the Edenic “light being” called *Adam*, and were reformulated in post Edenic reality where good and evil intermingle, and bodies are dense and opaque. The celestial *Adam* appears as a progression of discrete cross sections which is why the empirical evidence fits the typological model of animal classification, rather than the continuous one of Darwin. From this perspective, the family trees of taxonomy are actually identifying organ systems within the primordial man. Just as a logical and visual relationship applies to the limbs and organs of a person, so on a cosmic scale were the species related within *Adam*.

An evolutionary-like progression *was* involved in the original, higher-dimensional creation of the first six days. Yet, since the nature of physicality in Eden was different from our own, so the concept of progressive development is also different. Tradition teaches that G-d envisioned the end and perfection of the entire creative process before actually beginning the work. Then He *spoke* reality into existence, a process that took ten “statements” seven days. Thus the evolutionary

<sup>42</sup> Kaku and Trainer, p. 158.

<sup>43</sup> Kaku and Trainer, 170.

progression that applies to Genesis is a conceptual one, akin, in our world, more to the realm of thought than physicality. While thought also evolves and unfolds, it is not bound by the same rules and limitations that apply to matter. There exists, in the sphere of mind, the possibility of leaps and sudden turns, all related by a connecting theme (the stream of consciousness), but not burdened by the inertia of materiality. The evolution of mind is logical rather than physical. This is the evolutionary progression of Edenic creation, for existence was so sublime that bodies were thought forms, not physical forms. This is the realm where “poetic license” rules, and creatures are made from light, not matter. And this explains why:

No one has ever observed the interconnecting continuum of functional forms linking all known past and present species of life. The concept of the continuity of nature has existed in the mind of man, never in the facts of nature.<sup>44</sup>

If this theory based on Superstrings is correct, then the above statement is exactly right. Evolutionary relationships *do* exist, but they reflect a logical progression in the realm of mind, and not an *actual* one in the historical sequence of nature.

This is not to say that physical evolution did not (and could not have) happened as Darwin proposed. First of all this is only a theory, and both it and Darwin’s are compatible with Torah. Second, there remains the question of how, literally, the transition from ten to four dimensions took place. How did the reconstituting of reality actually happen after the fall? How did Eden don the garments of a four-dimensional world where good and evil mix? When it collapsed and reformulated on a lower level of reality, did it happen according to Darwin’s theory or not? The fossil evidence leans toward a topological model with discrete and independently arising units, rather than the continuous, organic and interconnected model that Darwin proposed. Still, the latter is more aesthetically and intellectually satisfying though its supporting evidence is thin. From the perspective of Torah, both are plausible.

The Torah identifies two things in this world as perfect and complete microcosms of the larger universe: the Tabernacle (the sanctuary built in the desert after Sinai), and the human being. Each arises in a different way, and it is not clear which models the historical progression of life on the planet.

The Tabernacle’s components arose independently, each from its own materials, fashioned by different artisans, and then combined into a coordinated whole. This parallels the typological model of evolution. A ten-dimensional *picture*, with its pieces already intact, translates itself, slice by slice, into four dimensions. The species are not actually arising from within the four-dimensional frame itself. They are being transferred from one state to another, like a globe flattening into a map. In this model the species are related conceptually, though not ancestrally. They fit together like puzzle pieces yet arose independently through some, as yet unidentified process by which ten dimensions transfigure into four. The definitional boundaries of each species are, and have always been, discrete.

The embryological development of life illustrates the second possible mechanism of evolutionary progression. A soul, a higher dimensional entity, comes down into this four dimensional world, and proceeds through a sequence of fetal development. A single cell evolves and differentiates stage by stage, and in the end becomes a single creature containing highly specialized and discrete organ systems that are as dissimilar from each other as one species from the next. All this came about from a single cell.

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<sup>44</sup> Denton, p. 353.

From a Torah standpoint, both are conceivable models for the evolutionary appearance of life. Though empirical evidence favors the former, since no scientific mechanism exists to explain it, scientists favor the latter.

### *Man From Monkey: A Question of Self Definition*

Superstrings combined with the typological model of evolutionary development eliminates the controversy of human ancestry. The family tree of taxonomic relations did not unfold through time with each level evolving from the species beneath it. Rather, their relationship derives from sharing proximal positions (or common organ systems) in the ten-dimensional *Adam*. Man does not arise from monkey, nor bird from reptile. They are conceptually and hierarchically related, yet their appearance as “blood relatives” is an artifact of our four-dimensional consciousness making slices of its ten-dimensional root.

Assuming, for the sake of argument however, that Darwin’s model of evolutionary development is true, and the translation of Eden to present follows the model of embryology, then whether man arose from monkeys the way that bears arose from lemurs remains a theological question. (The author discusses the metaphysical ramifications of this at length in another article).<sup>45</sup>

Neo-Darwinian evolution outlines a logical (if experimentally inconsistent) theory of the development of life, by way of mutation and natural selection. In this paradigm, form assumes greater complexity and sophistication over time, and each new creature emerges from a lower and more primitive species. Thus, evolutionists conclude that there is compelling physical evidence that *Homo sapiens* evolved from the gene pool that includes monkeys and apes.

Although it is “reflex” for the traditional Torah community to label that statement *treif* (not kosher), there is nothing in Torah that contradicts it. There is even a branch of commentary that provides explicit support.

Malbim states: “Most sages agree that when G-d said, ‘Let’s make man in our *tzelem* [image],’ He was addressing the works of Creation which were already established.”<sup>46</sup> He further observes that in the progression of creation “each stage of advancement incorporated, in extremely concentrated form, the essence of the creatures of previous stages.”<sup>47</sup> Following this thesis, one must conclude that the most developed life form, i.e., primates, was a microcosm of all that preceded it, and so was the likely and logical template from which nature could build *its* part of the *tzelem* [image], i.e. the human body.<sup>48</sup> Thus according to Malbim, the verse, “Let *us* make man in *our* image,” explicitly supports the evolutionary model.

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<sup>45</sup> Schneider, p.30.

<sup>46</sup> Malbim, Genesis 1:26.

<sup>47</sup> Malbim, Genesis 1:26.

<sup>48</sup>One finds further support for this idea in the Midrash (Pirkey de Rebbe Eliezar, Chap. 11). “And he formed the lumps of the dust of the first man into a mass in a clean place (it was) on the navel of the earth. He shaped him and prepared him, but breath and soul were not in him. What did the Holy One do? He breathed with the breath of the soul of His mouth, and a soul was cast into him, as it is said, “And He breathed into his nostrils the breath of life.” And in the Zohar 35b, “Adam and Eve, when they were first planted, were not swathed in light nor did they emit a sweet odor; of a surety they were uprooted and duly reestablished.

Both of these statements indicate that first there arose a body (*guf*) having none of the special sanctity and spiritual consciousness of “human being-ness” and only at some later point was it infused with a Divine Soul. This first stage could be the body or template that arose by evolutionary means, and only later, with Divine intervention, made its leap into human status.

Most importantly, Torah does not say “*your* image.” Man is not just the apex of a physical process of evolution, possessing a body of greater sophistication and refinement than any of his primate “ancestors.” Of infinitely greater significance than his physical dimension, man is blessed with *yechida*—a unique level of soul that partakes of the very essence of G-d. Earlier creatures could neither contain nor express this level of consciousness. “As each succeeding level [of Creation] became refined and more complex it became more receptive to higher levels of soul.”<sup>49</sup>

The real question is not “whether man’s anatomy developed from simpler anatomies, but to what extent is man primarily defined by his anatomy?”<sup>50</sup>

...The true definition of human being is not, as the philosophers argue, *chai medaber*, an animal possessing the power of speech; but *medaber chai*, a self-conscious mind in a physical body—the essential fact being his intellectual soul. Judged by essence, humanity is not classed together with lower creatures, but with the higher beings...since his physical body is only an incidental aspect of his self definition.<sup>51</sup>

This idea finds support in Torah Law. A convert to Judaism accesses an entirely new state of relationship with G-d. Doorways of spiritual possibility open, and his existential definition changes as he enters the faith community of Torah. This transformation is so drastic that Jewish law considers it more accurate to now define this convert as the child of Abraham and Sarah (the archetypal progenitors of Judaism) rather than as the child of his biological parents. Obviously his body and personality arose naturally and organically from his parental blood line, yet the most essential aspect of his identity is now his Jewishness, as he inserts himself into the collective soul of Israel. For this reason his Jewish name identifies him as the child of Abraham and Sarah rather than as the child of *Mr. X* and *Mrs. Y* (the names of his biological parents).

How much more would this apply to the first human being — the first creature to be capable of true spiritual service, of touching the level of consciousness called *yechida*. Even if his body did evolve from a lower life form, the fact of his crossing that infinitely significant boundary between animal and human is the most essential truth of his identity. If “creation” supplies the body and G-d provides the soul, then it becomes more accurate to describe him as a child of G-d (for his soul is exactly that), than as part of an evolutionary progression of physical form. Perhaps his body arose, exactly as Darwin postulated, yet this new power of soul marks a quantum shift that is his most important trait. No matter what his body’s origins, it becomes most accurate for Torah to describe the first human being as a direct creation of G-d.

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<sup>49</sup> Malbim, Genesis 1:25F.

<sup>50</sup> Malbim, Genesis, Trans. Gaier, P.125.

<sup>51</sup> Malbim, Psalms 8:6.

## *Environment as An Instrument Of Providence*

Each moment of reality is a Divinely choreographed process, says Torah, wherein G-d directs creation in accordance with His will. Conversely, Darwin describes the evolutionary process as random. Organisms change through time as descendants become progressively more suited to their particular niche or learn to adapt to a changing environment. The mechanisms of change postulated in this theory are a combination of random mutation, natural selection and survival of the fittest. While this point of conflict seems fundamental, it is only semantic.

Science and Torah actually outline an identical sequence of events by which the universe came into being. Each concludes that our material reality is simply an elaboration and unfolding of a preexistent and primordial blueprint that actually directs each step of the creative (evolutionary) process. This is likened to an acorn that contains all the possibilities and directs the entire life history of the oak from seedling to maturity, old age and death. The acorn precedes all that will come into being throughout the tree's thousand years of existence and directs its development every step of the way.

Judaism calls this blueprint the *Primordial Torah*, and it is the most concise and primary articulation of Divine mind. Concerning this the Midrash teaches, "G-d looked into the Torah and created the world."<sup>52</sup> Science posits an equivalent concept called "Space-Time Geometry," which is "the single irreducible substance/principle which includes the entire history and spatial extent of the universe."<sup>53</sup> Both Torah and science conclude that everything in the universe derives from this initial seed idea; all reality bears its signature, and all creations trace their origin to that first point of existence.

Understandably, when Darwin describes the means by which organisms adapt to their surroundings and evolve into various species, he concludes that environment is the key determinant. *Its* particulars of altitude, precipitation, temperature, and foliage determine which adaptations will be favored and which discouraged. Yet based on the contentions of *both* science *and* religion, every piece of reality (including every environmental niche) originates in the seed idea that directs the creative process. The biosphere embodies this root structure as a living symbol in perfect correspondence to its elemental precursors. Environment becomes the expression of that *Primordial Torah* (or geometry) as it expresses through time and space, name and form. To assert that environment directs evolution, is to assert that Divine will (or science's primordial geometry), which is manifest as that environment, selects the changes that conform to its preferences or configurational idiosyncrasies. Environmental selection becomes the primary mechanism of Divine Providence. It applies both to the physical traits of a species (i.e. the color of plumage, shape of beak, etc.) and to its behaviors. It pertains to lower creatures as well as to humans.

Darwin's Specific Theory of Evolution describes the means by which creation continuously perfects itself. As it shifts to the demands of its environment it is also conforming to the dynamic and underlying will of its Creator, which manifests as that environment. For humans the front of transformation is primarily cultural and psychological. The feedback of positive or negative reinforcement from our environment motivates behavioral changes and guides them in a particular

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<sup>52</sup> Zohar II:161b.

<sup>53</sup> John Graves, *The Conceptual Foundations of Contemporary Relativity Theory* (Cambridge: MIT Press, 1971), pp. 312-313. See "Evolution—Form and Consciousness" for a more developed discussion of this idea.

direction. The environment selects for certain behaviors and cultural developments by rewarding them with material success and/or quality of life. Others it discourages by bringing privation, conflict, tension, and existential dis-ease. The cosmic system of reward and punishment, more properly called, *Spiritual Cause and Effect*, reinforces appropriate choices and impedes negative ones. The criterion are as follows: Actions which bring a person closer to truth and a willingness to surrender to the implications of that truth, acts of generosity and lovingkindness; all these carry the purpose of creation forward, and so draw encouragement and positive reinforcement from the environment. Conversely, actions which deny the fact of G-d, His oneness, or active involvement in the world, which violate spiritual law and its preference for kind, moral and ethical behavior; these block the flow of bounty to creation and so hinder its progress. They are checked and corrected through negative feedback, which is generally experienced as suffering and discomfort.<sup>54</sup>

Just as an animal constantly adjusts to the environmental pressures of its ecological niche, so every human must constantly correct his thoughts, emotions, and behavior to conform more successfully to the multi-layered landscape of his socio-cultural reality. Do his deeds bring success or failure, pleasure or pain, peace or anxiety? These are the “environmental pressures” that sculpt and direct the evolution of the human species toward greater conformity to spiritual law.

In this way the environment actually drives the evolutionary unfolding of the planet. Growth is a labor intensive process. Without powerful inducements no soul (human or otherwise) would actualize. Only because the environment demands it, does the work get done. The ecosystem (on every plane from physical to spiritual) is in constant flux and demands its creatures to keep moving if they want to survive. It does not allow anyone to rest on their laurels (at least for long). As pressures and circumstances shift, the creatures of each niche must draw upon their latent potentials to adapt to their new conditions. If one understands environment as a living embodiment of Divine will then this process has a definite direction. An ecosystem forces its creatures to actualize their potentials and so fulfill the purpose of their existence. Each niche has its own unique combination of features and pressures which require *its* creatures to cultivate particular traits and talents if they are to survive there.<sup>55</sup>

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<sup>54</sup> These principles and assertions raise the ageless question: Why do bad things happen to good people? How does one reconcile the fact of perfect justice with all the appearances to the contrary. These questions can only be properly addressed by drawing from the kabbalistic level of teachings which is outside the scope of this paper. Let it suffice to say that there are very profound and satisfying answers to be found there. One thing is clear, in the final frame, when all the causes and effects are sorted out, everyone will see that there was always only perfect justice and only good endures.

<sup>55</sup> This is secret behind the Torah’s seemingly irrational insistence that a very particular area of land (the terrain contained within the biblical boundaries of Israel) should be the “homeland” of the Jewish people. This seems strange at first. Isn’t the most important thing that there be *a* homeland? Isn’t the *place* of it somewhat irrelevant. The answer is that each area of land is an ecosystem which forces its creatures to develop in certain ways if they are to survive and to flourish there. Southern Europeans are different from northern ones, Californians are different from New Yorkers. The territory within the boundaries of Israel is also an environmental niche which selects for the behaviors and traits that are specified in the second paragraph of the *Shema*: “...If you love *HaShem* your G-d and serve Him with all your heart and with all your soul, then I will provide rain for you land in its proper time...you will gather in your grain, your wine, and your oil. I will provide grass...for your cattle. You will eat and be satisfied. Beware lest your heart be seduced and you turn away and serve other gods...there will be no rain and the ground will not yield its produce. And you will be swiftly banished from the goodly land...”

The land of Israel requires its inhabitants to develop spiritually. (It would seem that each people has its own “place” and ecosystem which draws forth *its* full spiritual potential though others living there would not be as profoundly affected.) Unless (at least the Jewish residents) of Israel are growing and purifying their relationship with G-d they will not survive and certainly will not flourish there. Self actualization is a labor intensive process and no one does it unless they are forced, unless their physical or psychological survival requires it. A Jew could live any other place in the world and avoid developing his or her full capacity of relationship with G-d. The ecosystem of Israel, however, demands, that at least its Jewish inhabitants actualize every drop of their spiritual potential.

Tradition teaches that, “Everything created in the first six days requires further perfection . . . and humans too needs finishing off.”<sup>56</sup> The mechanism by which creation fulfills this task is, no doubt, consistent with Darwin’s proposed theory of micro-evolution. The tools of natural selection, random mutation, and survival of the fittest are perfectly designed for the job.

It is the unanimous opinion of traditional sources that creation’s task of perfecting itself requires us to reattain that original state of unity and harmony that prevailed in Eden. Each creature contributes the unique work of *its* soul and *its* species. Genesis outlines the general frame of this vision. Plants and animals are given the task of reproducing themselves, filling the planet with a glorious profusion of forms, entering every ecosystem and seeding it with life. This is their praise to their Maker, this is the way they fulfill their charge. The Specific Theory Of Evolution articulates the mechanics of this process.

The human being is assigned the role of exercising “...dominion over...all the earth” (Genesis 1:26), a task that is not fulfilled by brute force and self serving exploitation, but by conscious and loving utilization of all resources for Divine service.

The history of civilization is characterized by expanding awareness and bringing consciousness to bear on the entirety of the phenomenal world. Science, psychology, the arts, and even religion are penetrating into every nook and cranny of reality and subjecting it to the light of understanding. It is not enough that something is, or that it works. We must know why and how; and there is no peace until every stone is turned.

What does awareness accomplish? What changes when something is known? Understanding alters the relationship between subject and object by dissolving the existential chasm between them. When humans acquire information about the world, they gain mastery over it, and it becomes an extension of them. Now they can use it more efficiently to serve their will which, if they are spiritually committed, actually means to serve G-d’s will. When utilized for good, and true religious purpose, the object moves from passive existence to active service, its potential unlocks and attains full realization. The highest achievement of every existence, whether human, animal, plant, or mineral is to actively serve G-d by participating in a revelation of Divine oneness and compassion. The lower kingdoms cannot do this on their own. But when they facilitate some conscious act of human service they rise above themselves. In this way humans fulfill their role of “mastery” over other living things. Paradoxically, only when a person first accepts his “servitude” to G-d and Torah<sup>57</sup> can he “master” creation in a way that effects *tikun* (fixing, perfecting, elevating) and not exploitation.

The human’s mission of perfecting creation by exerting dominion through the expansion of consciousness also employs the mechanism of microevolution. In this context, however, environment includes not only physical pressures but also the more subtle, informational fabric of reality; both the beauty and patterns of interrelationship that a scientist discovers when studying the world, as well as the truths that a person uncovers when struggling to learn the lessons of life. Each new insight, if truly internalized (as eventually it must) alters behavior in accordance with its content and, more importantly, in accordance with the Creator who designed the world as a living embodiment of His will. In the course of human life and human culture, as the mind probes into the

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<sup>56</sup> *Bereshit Rabba* 11:6.

<sup>57</sup> The Torah contains many enlightened principles of ecology.

more subtle layers of its ecosystem, individuals and society become more successfully adapted to their physical-cultural-spiritual environment.<sup>58</sup>

As humanity's collective mind expands, all reality will eventually squeeze within the horizons of its visual field, including the six dimensions that collapsed into apparent nonexistence after *Adam* ate from the Tree of Knowledge. This process has already begun. Since science now postulates the existence of these realms, and has turned its attention to them, it is only a matter of time before the light of consciousness penetrates into even those remote corners of reality (the six lost dimensions). Only when they, too, come under the "dominion" of humanity, and are patched back into the fabric of reality that was torn asunder at "the Fall" — only then will Edenic unity be restored to its radiant and multidimensional glory. The micro-evolutionary process will then be complete.

This is the application of Darwin to the human realm. The only difference between its classic and Torah formulations, is that the environment which directs the species to evolve and adapt is not an arbitrary construct, but a "living symbol, expressing in minute and perfect detail, the dynamic vision of Divine perfection that underlies creation."<sup>59</sup>

The naturalist who denies G-d discloses a trace of the very G-d he denies with every law he uncovers in his investigation... The end [or pattern of nature] he seeks presupposes the very Divine mind which he denies, Who established the laws, the very discovery of which fills him with such supreme joy.<sup>60</sup>

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<sup>58</sup> The criteria of successful physical adaptation, according to Darwin's model, are population growth and extended life and reproductive span. The criteria of successful psycho-spiritual adaptation is inner peace and quality of life.

<sup>59</sup> Schneider, 31.

<sup>60</sup> Hirsch, *Genesis* 1:1.

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## TORAH AS THE UNIFIED FIELD

Torah is not a fragile relic that needs protecting against the cold, hard facts of the modern world. It is the master filing system of the cosmos and all phenomena must find their place in its all encompassing field, for in so doing, they also find their *raison d'être*. The extent to which anything exists independent of Torah's frame, is the extent that multiplicity reigns. Everything has a root in Torah and its scholars and practitioners must determine where each piece fits. Some are obvious, others very complicated. The labor often requires microscopic separations between the truth of science and its mythology, between the fact of an observation and the distorting forces of preconception and observational bias.

Torah invites us to push against it as hard as we will, and to test its relevance to the post-modern world. No question is beyond its scope of wisdom. The genius of Torah, Rav Eliyahu of Vilna, was consulted by scientists and tradesman for his expertise in secular subjects. His encyclopedic knowledge of the revealed and mystical traditions of Judaism, enabled him to hear a problem and identify its corresponding paradigm in Torah. With the piece now in its larger context, he could identify all the relevant elements in their proper relationship and from there suggest a solution.

It is prominently known that many of the intelligentsia, and those educated in the sciences both among the sons of Israel and those not of the covenant of Israel (including even dukes and princes) used to frequent our master the Gaon Rabbi Eliyahu. They requested from him solutions and advice concerning difficult questions in the investigation of the natural processes. He solved all the perplexing questions in a most astounding and expedient manner."<sup>61</sup>

This is how the dense knots of the Sinaic revelation get unraveled. The latent wisdom in Torah finds concrete expression in the real world, and Torah's teachings extend to yet another aspect of reality. This is no small matter. Just as the species' appear as discrete and disconnected cross sections of Eden which cannot reveal its wondrous multidimensional unity in this four dimensional world, so the sciences and philosophies, arts and culture bear exactly this relationship to Torah. Eventually all reality must find its place in the master vision that preceded all, the comprehensive formulation of spiritual law and cosmic plan, the *unified field* of metaphysics...the Torah.

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<sup>61</sup> Rabbi Hillel from Sklov, Kol HaTor