



*“Words from the Heart  
Enter the Heart”*

## PESACH > Second Day

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April 24, 2016

Pesach

**A Scientific View of the  
Ten Plagues**



# Meaningful Sermons

*"Words from the Heart  
Enter the Heart"*

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## ABSTRACT

The DNA of all the world's matter has been programmed by God in a calculated and healthy way. But what happens when matter mutates and gets corrupted at the hands of man, as it happened when Egypt cruelly enslaved and choked – *Mitzrayim* from the word constriction – another people?

Re-programming is needed.

A Talmudic debate about the number of the plagues – Was each plague really four-plagues-in-one or five-plagues-in-one? Were the ten plagues really forty plagues or fifty or more? – coupled with recent studies about DNA, genomes and a bacterium called *Mycoplasma mycoides*, teach us the deepest secrets of Passover and especially the ten plagues! For the ten plagues were God's mechanism for re-programming nature corrupted by depravity.

Decipher the meaning of the mysterious ten plagues and discover how they can help us face our present challenges and reach unprecedented heights.

As a great American painter once quipped: "Art begins with the getting-rid of nature." Well, according to that definition, the ten plagues are the greatest works of art ever created.

## A SCIENTIFIC VIEW OF THE TEN PLAGUES

### 1. Man-Making Contest (Joke)

A group of scientists got together and decided that man had come a long way and no longer needed God. So they picked one scientist to go and tell God that they were done with Him.

The scientist came knocking on heaven's door and said, "God, we've decided that we no longer need You. You've done a great job up until here but now you've become redundant. We're to the point that we can clone people and do many miraculous things, so, here's Your pink slip. We recommend that you look for a new job."

God listened very patiently and kindly to the man. After the scientist was done talking, God said, "Very well, how about this: What do you think about having a man-making contest? If you make a better human being than I could make, I will leave, but if I make a better human being than you can make, I stay."

The confident scientist readily agreed. The date was set, three days time, for the man-making contest to take place.

Three days passed. The entire world was gathered to watch this monumental competition. Every scientist in the world was there, as was every layperson; every skeptic and every believer. A hush fell across the earth stage. The competition had begun.

The scientist went first. He bent down to grab himself a handful of dirt in order to form the human corpus.

At which point God interrupted with: "Nooooo – you go get your own dirt!"

## 2. Science and the Earth

The world is a fascinating place. We have in it all the resources to produce and sustain life. When you think about it, it's really a miracle – simply unfathomable and astounding. Science today only amplifies our wondrous world. With its ability to tap into the forces of nature that have been hidden from the beginning of time – from DNA to sub-atomic particles – man has developed groundbreaking technologies that continue to radically improve and reshape the world in which we live.

Yet, all these developments still require and tap into the world's pre-existing resources and elements. With all our great achievements, at the end of the day we are discovering forces and powers that have always been there, but have not been seen and certainly not been actualized. We did not create the atom; we uncovered it and manipulated it – most often for the good and betterment of the human race.

But what happens when man, tragically, corrupts the elements of the world?.

This, my friends, is the inside story of the Egyptian exile and exodus, and specifically the ten plagues. This the story of Passover and its personal relevance to our lives today – how to free ourselves from the corruption of the elements.

## 3. New Yorker Article

Let me begin by reading a snippet from a recent *New Yorker* article by Nicola Twilley, entitled, "What's the Point of Streamlining Nature?":

When the theoretical physicist Richard Feynman died, in early 1988, he left behind a maxim scrawled on the blackboard of his office at Caltech: "What I cannot create, I do not understand."

The words have been repeated often by scientists in many fields, but never so indelibly as when researchers at the J. Craig Venter Institute, in Rockville, Maryland, encoded them into the genome of a living organism, in 2010. Venter and his colleagues called their new entity syn1.0. It was a replica, with a few extra snippets of DNA thrown in, of *Mycoplasma mycoides*, a parasite that causes pneumonia in goats. Syn1.0 was the first human-engineered genome to be capable of controlling a cell, and Venter's group used a custom alphabet of nucleotides to weave messages into it marking their own success. Revealingly but unintentionally, they mangled the Feynman quote, rendering it as "What I cannot *build*, I do not understand."<sup>1</sup>

The scientists at the J. Craig Venter Institute essentially synthetically replicated nature, manipulating it, *building* it, but not essentially *creating* anything from scratch. The article continues:

Last week, in a paper published in the journal *Science*, Venter's group unveiled the next step in their Feynmanian quest: syn3.0...

But, in certain ways, syn3.0 must be classified as something other than a complete success. For a start, as Venter and his colleagues explain in their *Science* paper, they were able to build the genome but not, in Feynman's words, create it. Their original designs failed to result in a viable cell. Instead, the researchers took syn1.0's genome and reshuffled it, producing a lightweight variation on the original ....

"Anyone who claims that she or he understands how a cell works is either ignorant or ridiculously arrogant," said Eugene Koonin [of the National Center for Biotechnology Information], "They don't."

Syn3.0 itself provides ample evidence of this: Venter's group doesn't know what nearly a third of its genes do. "Our main interest now is investigating those," Hutchison said. For some of the mysterious genes, the researchers have a general sense of their purpose -

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<sup>1</sup> <http://www.newyorker.com/tech/elements/whats-the-point-of-streamlining-nature?intcid=mod-latest>.

removing toxins from the cell, for example – but not which chemicals are involved or why syn3.0 could possibly need six different ways of taking out the trash. For other genes, Hutchison said, “We don’t have a clue.” Answering that question will help demonstrate what functions are fundamental to life, if not how many genes they require.

What can this article teach us about nature? What can it teach us about miracles and about Passover?

#### 4. Understanding Existence

First of all, while today’s scientists have come far, they still cannot create anything; the best they can do is to build something, but even what they manage to build, they still don’t understand.

On the other hand, God created the universe. God understands what He has created. That’s obvious, but it often helps to state the obvious.

Another obvious statement: Since we did not create the universe, it is quite impossible for us to understand the universe without help from above. Indeed, the surest way for us to glean any insight at all is by studying the Creator’s understanding of the universe which is contained in the Torah, the blueprint of existence.

So what does the Torah tell us?

It tells us that God created the universe with ten utterances.<sup>2</sup> And Kabbalah – which is the inner dimension of the Torah – tells us that a ten sphere system<sup>3</sup> is the spiritual DNA of every nuance of matter, forming and informing its being, programming how it should be, look, feel, sound, move ... everything.

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<sup>2</sup> Avot 5:1.

<sup>3</sup> Sefer Yetzirah 1:2. Potach Eliyahu, intro to Tikkunei Zohar. The Ten Sefirot system is the structure of each of the four “worlds” of Seder Hishtlashelut, the Cosmic Order of the Chain.

Generally speaking, the ten spheres or *sefirot* are separated into four groups, each corresponding to the four letters of God's holy name. These four groups are also represented by the four archetypal elements of matter, fire, water, air, and earth. Fire represents *chochma* (the subtle core and seminal component of all matter), water *binah* (the intellectual), air *tiferet* (the emotional), and earth *malchut* (the tangible).<sup>4</sup>

As Maimonides put it:

These four bodies: fire, air, water, and earth are the fundamental of all the creations below the sky. Everything that exists – man, beast, fowl, crawling creature, fish, plant, metal, precious stone, pearl, building stone, mountain, or lump of earth – the body of all these is a combination of these four fundamental elements.<sup>5</sup>

When everything in existence goes right – and may it always – the ten spheres and four elements work in perfect symbiotic harmony. The object is aligned with its internal engineering.

But what happens when something goes wrong and human selfishness corrupts and toxifies these core elements? What can be done when injustice and cruelty enslave and choke life instead of nurturing it? What happens when the internal engineering of matter has been tampered with? What then?

Then the divine immune system embedded in existence kicks in to heal and repair the damage done to these elements.

## 5. Ten Plagues

This immune system is called the ten plagues.

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<sup>4</sup> Eitz Chaim Shaar Drushei Aby" a ch. 1.

<sup>5</sup> Hilchot Yesodei Hatorah, 4:1.

The ten plagues are ostensibly one of the more perplexing mechanisms in the Torah, but, when you begin to think of the cellular structure of the world's elements, perhaps in context of the *New Yorker* article, the plagues begin to make sense. In essence, they are actually the lethal effects of destructive behavior, which come to heal the damage done.

Matter is programmed in a certain way. Human misbehavior damages the “wiring” of the matter it effects. And a plague comes to “break” and counter the damage done, by manipulating and rewiring the programmed matter that was effected. A plague transformed the matter of Egypt, rewriting and re-encoding its DNA. It turned slave-DNA into free-DNA.

We, who have not created matter and therefore do not understand it, call this a miracle, a wonder, magic.

Studying the Torah reveals the secret behind this magic.

## 6. The Jewish Journey

At the Seder last night and the night before, we all read the *Haggadah*. The *Haggadah* recaps the journey of Jewish history, from Abraham the first Jew, through the descent of the Children of Israel into Egypt, and finally culminating with their liberation from slavery.

This journey, as described in the *Haggadah*, includes the ten plagues (the part where we all pour out a little wine for each plague).

Right after that, the *Haggadah* quotes Rabbi Yosi Hagelili and then relates a debate between Rabbi Eliezer and Rabbi Akiva:

Rabbi Yosi Hagelili provided scriptural proof<sup>6</sup> that, the Egyptians were struck by ten plagues before the Exodus, and fifty more at the splitting of the sea.

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<sup>6</sup>Exodus 8:15; 14:31.



Based on differing interpretations of a verse from Psalms,<sup>7</sup> Rabbi Eliezer and Rabbi Akiva disagreed about the number of the plagues. Rabbi Eliezer opined that each individual plague consisted of *four* plagues. Rabbi Akiva, who read the Psalm a little differently, maintained that each individual plague consisted of *five* plagues.

Thus, according to Rabbi Eliezer, the sum total of the plagues was forty (4x10) in Egypt and 200 (4x50) at the splitting of the sea. While according to Rabbi Akiva the sum total was fifty (5x10) in Egypt and 250 (5x50) at the splitting of the sea.<sup>8</sup>

A few questions:

- What is the fundamental underpinning of their debate?
- How can they disagree in a factual event – either there were 10x4 = 40 plagues or there were 10x5 = 50 plagues?!
- How could a single individual plague be broken down into four or five plagues?
- Why is it important for us to know about this seemingly technical disagreement? How is it relevant to our lives today, in the year 2016?

## 7. Toxic Saturation

According to the KolBo's commentary on the *Haggadah*,<sup>9</sup> Rabbi Eliezer and Rabbi Akiva are debating the level of toxic saturation in Egypt and the needed level of restructuring of Egyptian matter. Rabbi Eliezer maintains that the impurity of Egypt saturated the four archetypal elements of matter, fire, air, water and earth. Rabbi Akiva asserts that, in addition to the four elements, the toxicity of Egypt seeped as well into the *koach haeyuli*, the nucleus core level of potential, an essential amorphous level.

<sup>7</sup>78:49.

<sup>8</sup>Cf. Mechilta, Beshalach 14:31.

<sup>9</sup>Cited also in Orchos Chaim, Avudraham, Rashbatz and Ritva (cited in Akeidas Yitzchak gate 40) – on the Haggadah. Explained in Likkutei Sichot vol. 16, p. 87ff.

And herein lies the crux of their debate: How did God transform the toxic and enslaving mutations of Egypt into the freeing and liberating exodus?

Rabbi Eliezer held that the toxicity polluted the four elements of matter (but not the essence of matter), thus he maintained that each plague was really four – each plague affected every one of the four levels of material formation, fire, water, air and earth.

However, Rabbi Akiva opined that the Egyptian impurity was so toxic that it bled and impacted even the essence of matter itself, the *koach haeyuli*, the amorphous nuclei of nature. He thus maintained that each one of the plagues consisted of five, to address the four elements as well as the core essence.

## 8. Two Approaches to Life

The debate between Rabbi Eliezer and Rabbi Akiva, and their respective perspectives on life, may be connected to their respective heritages.<sup>10</sup>

Rabbi Eliezer was descended from Moses himself,<sup>11</sup> indeed he was named after Moses' son Eliezer;<sup>12</sup> Rabbi Akiva was descended from converts.<sup>13</sup>

Rabbi Eliezer never questioned a Jew's essential state, a Jew's nuclear essence. Rabbi Eliezer believed that the core always holds true and maintains its integrity, even when Jews are imprisoned within the toxic tentacles of Egyptian bondage. All that needed to be realigned were the ten spheres making up our corpus. Since these ten spheres are divided into four groups – corresponding to the four elements of

<sup>10</sup> See talk from Lubavitcher Rebbe, 2nd night Passover 5711. *Likkutei Sichot* *ibid.* p. 93.

<sup>11</sup> Rabbeinu Bechai in the name of the Midrash, brought in Seder Hadorot, his entry, ch. 6.

<sup>12</sup> See *Likkutei Sichot* *ibid.* fn. #38-40.

<sup>13</sup> See Seder Hadorot under his entry.

fire/seminal drive, water/intellect, air/emotion, and earth/action – Rabbi Eliezer maintained that each plague, each transformative action, was really four.

Rabbi Akiva's ancestors transformed their entire being, converting everything, even their essential selves, their *koch haeyuli*, in order to become Jews. This is why Rabbi Akiva maintained that going out of slavery to freedom required transforming the essential nuclei (in addition to the four elements of the ten *sefirot*). This is why Rabbi Akiva held that each plague, each transformative action, was really five.

## 9. Personal Lesson

We left Egypt 3,328 years ago. By breaking down the enslaving DNA of Egypt and reconfiguring it into something liberating and pure, the ten plagues changed Egypt's matter from that of slavery into freedom.

The same thing happens today. In addition to commemorating an event that happened all those years ago, Passover today celebrates our ability to free ourselves from all limitations and liberate our bodies and souls from all of their material confines.

Egypt represents confinement and limitation. *Mitzrayim* means constraints in Hebrew. Going out of Egypt is transcendence – freeing ourselves from all forms of confinement and limitation.

We free ourselves by breaking down the enslaving DNA of spiritual Egypt (with the ten plagues) – the oppressive forces of materialism that can be so overwhelming and backbreaking – and reconfiguring it into something liberating and pure. The ten spiritual plagues change the spiritually confining matter from one of slavery into one of freedom. That we be not a product or victim of circumstances, but a free spirit seeking to fulfill our higher calling.

The difference of opinion is whether this happens in the four elements of matter alone, or also in the essential core level as well. But everyone agrees that all four levels of everything must be transformed. And here is how this is relevant to us:

1. Earth:

Behavioral conditioning.

First and foremost we must change our actions, from reacting to the pressures around us to being proactive and taking the initiative in all good things. Changing what we do changes everything. For this reason the Passover Seder is so action-oriented. It calls for dipping, drinking, leaning, breaking, cleaning, storytelling – deprogramming how we have acted (when enslaved) to how we will act (when free).

2. Air:

Emotional conditioning.

Next, we must change our emotions and feelings. We need to get inspired. We cannot feel how we felt. If we were numb and desensitized to the Divine, we must transform that into being in touch and inspired. Perhaps more than any other Jewish experience, the Passover Seder strikes an emotional chord in all Jews. There is something here that touches even the greatest cynic. Freedom is plucking and playing that emotional chord to its fullest.

3. Water:

Cognitive conditioning.

Our intellects must be stimulated, refined and elevated. This is the reason questions are so fundamental to the Seder. They pique curiosity and encourage seeking and inquiry. They provoke and challenge us to understand the meaning of slavery and freedom today, our role in the the world, our Jewish identity and destiny. Reciting the *Haggadah* stirs us to be honest about our lives and our calling, behooving us to go from being slaves to becoming free thinkers.

#### 4. Fire:

Spiritual conditioning.

Finally, our seminal conceptions and fiery abstract passions must be transformed as well. This level is called *mesirut nefesh*, the complete commitment of the soul. Like in any business, absolute commitment and persistence is the key to success. Slavery weakens our spirit and has us questioning and wavering. Freedom, achieved on Passover, reminds us that commitment is everything.

Rabbi Akiva adds a fifth dimension for more dire situations, where one's core may have been effected, as in abuse or other violation of a person's inner spirit. In that case, all is not lost. We have the ability to wash out and cleanse even the core, and create complete conversion through teshuva!

## 10. Conclusion

The *New Yorker* article ends on this bright note:

The American painter Ad Reinhardt, whose work had a major influence on the Minimalist movement, once wrote that “art begins with the getting-rid of nature.” Trying to engineer a minimal cell cannot help but run up against this dichotomy, which Agapakis summed up as the “conflict between the emergence of evolutionary novelty and the construction of designed novelty” – in other words, between the logic by which we seek to alter biology and the logic by which it alters itself. From this perspective, syn3.0's relationship to life begins to resemble the relationship of Soylent<sup>14</sup> to food. Both are facsimiles that serve mainly to show us the richness of the original.

<sup>14</sup> Soylent Green was a classic 1973 science fiction thriller. Soylent also refers to a meal replacement beverage, available in both liquid and powdered forms. Its creators have stated that Soylent meets all nutritional requirements for an average adult, but some critics claim otherwise. See Wikipedia here: [https://en.wikipedia.org/wiki/Soylent\\_Green](https://en.wikipedia.org/wiki/Soylent_Green) and here: [https://en.wikipedia.org/wiki/Soylent\\_\(drink\)](https://en.wikipedia.org/wiki/Soylent_(drink))

At best, nature/matter is a facsimile that serves mainly to show us the richness of the original.

“Art begins with the getting-rid of nature.” Everything about the ten plagues is about getting rid of a perverted nature and revealing the supra-natural and extraordinary within all things ... ridding ourselves of the negative and confining habits that result from everyday living to unshackle the limitless potential embedded within each and every one of us.

We certainly must do so with all four elements – action/earth, emotion/wind, intellect/water, and soul/fire.

And at times, we ought to do so even on the level of essence.

Either way, the result is the same: transformation of enslaving matter to freeing matter, leaving us only with freedom and liberation for all!

Chag Sameach and a Happy Pesach!

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