

Hail, Chesed and the Foundation of Scientific Enquiry

We begin this week to read about the Ten Plagues. It is interesting to note that the plagues are divided up between this week's parsha and next week's. The division is not the simple 'fifty-fifty' split, but rather we have seven plagues in Vaera and only three in Bo. Let us try to understand why the Rabbis decided to divide the parshiot in this manner.

It is known that the Ten Plagues correspond to all the other 'tens' in Torah. Therefore they can be matched up with the Ten Commandments (though in reverse order) and with the Ten Utterances with which heaven and earth were created. The root of all of these 'tens' is from the kabbalistic concept of sefirot – the ten facets of G-d through which He interacts with the world. The sefirot (*Chachma, Bina, Da'at, Chesed, Gevura, Tiferet, Netzach, Hod, Yesod* and *Malchut*) are divided into the three 'upper' sefirot of *chabad* (*Chachma, Bina* and *Da'at*) and the seven lower sefirot. The sefirot are the mechanism by which G-d interfaces with the world, and there is a descent from the most 'G-dly' to the most physical. The plagues also showed G-d interacting with the world. However with the plagues the order was the other way – G-d began with the most physical, and ended with the clearest revelation of His Divine intervention in the world - the plague of the killing of the first born (I and not an angel etc.). Therefore it seems clear that the division of the plagues between the parshiot corresponds to this division between the upper and the lower sefirot. (Look at Rav Tzadok HaCohen who explains in *Pri Tzadik* on parshat *Bo* many of the connections between the plagues and the sefirot).

So the last plague in our parsha, the plague of hail, corresponds to the first and highest of the lower sefirot – *chesed*. *Chesed* is usually translated as kindness most closely associated with Avraham. The question is, how does this relate to the plague of hail?

The Torah tells us that this was no ordinary hail, but rather that there was fire burning inside the ice of the hail (Shemot 9; 23). Any crop that was not destroyed by the impact of the hail suffered from the burning of the fire. Yet we know (from the Rambam chapter 8 of *yesodei hatorah*) that G-d only does miracles when they are necessary, not simply to 'show off'. So it is legitimate to ask why there was a need for a miracle within a miracle in the hail – the fire within the ice.

Pharaoh's response to this plague is unique. Only after the plague of hail does he admit "This time I am guilty! G-d is just! It is I and my people who are wrong!" (ibid. v. 27). What was it about this plague that showed Pharaoh so clearly that G-d is just more than any of the other plagues?

One final question – this plague is also unique in that the Torah states: "Never before in Egypt, since the day it was founded, has there been anything like it." (ibid. v. 18). About the plague of locusts (for example) it states "Never before had there been such a locust plague and never again would the like be seen" (ibid. 10; 14). We would expect that the plagues only happened once in history,

and their like was never seen before nor since. Yet with the plague of hail it states that it had never happened since the day that Egypt was founded. This clearly implies that on the day Egypt was founded there was a plague like this. Egypt, like all the nations, became a distinct nation at the time of the Tower of Bavel. It was then that all the nations of the earth were separated from each other and took on their own individuality. Therefore we should look there for a hint to another plague of fiery hail. If we look at the Ba'al HaTurim on Bereishit 11; 8 he points out that the word *vayechd'lu* (ceased) only occurs twice in the Torah – once by the Tower of Bavel and once by the plague hail. He therefore concludes that when G-d destroyed the tower and dispersed the nations there was the same fiery hail as at the time of the plagues in Egypt. So we must now ask, what is the connection between the Tower and dispersion, and the hail? In summary we have four questions:

1. How is hail connected to *chesed*?
2. Why was there a need for a special 'miracle within a miracle' to have fire within the ice?
3. Why was this plague more convincing for Pharaoh than any of the others?
4. What is the connection between hail and the Tower of Bavel?

Chesed is kindness. The only way that I can perform acts of *chesed* for another person is if I can feel a connection to them, so that I can perceive what they need, and also care enough to act on that need. The act of kindness is based on a connection with the other person (and of course any act of *chesed* strengthens the connection to the other at the same time). Ultimately *chesed* is the connection between everything in creation. This is the meaning of the verse "I will build a world of *chesed*". Avraham personified *chesed* because he was able to see the underlying connection between all the aspects of creation, and to see the unity of G-d behind the multi-faceted world.

Even in English the word kindness means connection – as in 'kin', or 'kind' showing a familial or other similarity and relationship.

This explains the meaning of the word *chesed* in Vayikra (20; 17) "If a man takes his sister ... and sees her nakedness ... this is *chesed*". Look at the commentaries there who explain that this means a perversion. But on the simplest level we can understand that the connection between a brother and sister is the closest level of relationship and therefore is the biggest perversion because it is *chesed* – kin.

This concept of the interconnection between all of existence is the foundation of science. The search for the 'Theory of Everything', or even the belief in the existence of 'laws of nature' comes from the belief that underlying everything are rules that govern everything. Only those cultures who followed Avraham's discovery of the unity of G-d underlying creation have developed a system of scientific method. If one believes in multiple gods, everything is chaotic and there is no reason to suspect that there is any connection between, for example, the behaviour of water and the behaviour of fire. This was the fight between

Avraham and Nimrod in the famous *midrash* before Avraham was thrown into the fire. Nimrod demanded that Avraham worship the fire. Avraham pointed out that water is stronger than fire because it extinguishes it. When Nimrod then instructed Avraham to worship the water Avraham argued that the clouds are stronger than water because they carry water. And the wind is stronger than the clouds, and a person is stronger than wind etc. He was demonstrating the futility of Nimrod's worldview that separate items have their own powers. Avraham argued that logically one must seek the root of all of these things.

Only if one believes that at source everything connected, is it possible to develop a worldview that would lead to disparate items all obeying the laws of gravity, atomic particle motion and suchlike. Therefore every scientist by definition is a believer in G-d, and despite protestations to the contrary is basically searching to discover the unified laws that will lead us to the clear revelation of the unity of G-d. Science is a quest for the *chesed* behind the world.

While the scientists are seeking quarks and other sub-atomic particles (or new elements, or different species of animal) we can look at how the Torah defines the building blocks of creation. The 'builder' of the Torah is Betzalel who constructed the *mishkan*. The Talmud (Brachot 55a) explains that his wisdom is that he knew how to combine the letters of creation to form things. Since the world was created with the Divine utterances, it turns out that the common root of all things are the letters of the Hebrew alphabet. When Adam named all the animals he was seeing how each thing was constructed and expressing creation using the language of creation. (This explains why in Hebrew *davar* means both 'word' and 'thing' – ultimately words are things and vice versa).

Therefore, if one discovers how to manipulate the letters of creation one is able to create for oneself. This was the discovery of the generation of the Tower of Babel. The Torah stresses that their sin was based on the fact that they all spoke one language – Hebrew. And this one language led to *d'varim achadim* (unified things/ words). In the Yerushalmi (Megillah 1; 9) it explains that this was not only 'one language' but also the 'language of the (Holy) One' – G-d.

This is clear from the verses. Their intent was not to build a tower to heaven (since they went to the lowest place on earth to start building it), and in fact the idea of a city and a tower only came after they had discovered how to make bricks: "They said to one another 'come let us mould bricks and fire them'.... They said 'come let us build ourselves a city and a tower whose top shall reach the sky...'" (Bereishit 10 3-4). And if we look at the Hebrew we see that their discovery was that they figured out how to turn *l'veina* into *even* and *cheimar* into *chomer* (v. 3). By combining the letters they were able to create bricks for themselves.

The mistake of Babel was that having discovered the scientific secrets at the root of existence they felt that they no longer needed G-d. As they discovered how the world worked, the 'god of the gaps' grew smaller, until they felt that their tower and city would be a testament to the death of G-d.

The one thing that a scientist cannot tolerate is a miracle which clearly disobeys the laws of nature. If G-d constructed the world using rules and laws, which scientists (in Bavel as today) seek to discover, then miracles which break those laws destroy not only the science but the whole methodology. It is 'impossible' for G-d to have stopped the sun for Moshe or for Joshua because we 'know' that this would disrupt all the laws that keep the entire universe running.

We may have the luxury of dismissing Biblical miracles as metaphors or hyperbole, but if we experienced those miracles we would quickly lose our faith in science. This is what happened with the Tower of Bavel. G-d 'descended' to see what they had done. With that clear and miraculous perception of G-d all of the knowledge of the atomic letters made no more sense, and 'their language became confounded'.

Now we understand why they were punished with fiery hail. On earth fire and water are total opposites, each attempting to destroy the other (through extinguishing or evaporating). Whichever is the stronger will prevail. But that is only on earth. In heaven (which itself is made from fire and water – *aish v'mayim = shamayim*) fire and water dwell together in peace. This is the meaning of '*oseh shalom bimromav*' – He makes peace on high – peace between the fire and the water. When G-d sends down fire inside hail He demonstrates that the laws of nature only operate because He wills it to be so. Even a scientist still needs G-d to keep the rules going, as we say in the Brachot before the Shema '*oseh ma'aseh bereishit*' – G-d continually keeps the creation going. So the plans of Bavel and the tower fell apart when they realised that there campaign against G-d could never work so long as G-d can perform miracles. Now we can understand how the hail of Egypt is connected to *chesed*. The fire and ice together show that ultimately everything shares a commonality with everything else in existence. The perception that we have of their opposition is only an illusion based on their external qualities. Deep down both fire and ice are linked by the Divine Will which keeps them apart on earth, but brings them together in heaven. This was the meaning of the miracle within a miracle. Not only were Egypt being punished for enslaving the Israelites, but also for rebelling against G-d. When Pharaoh saw this he was forced to admit that "G-d is just! It is I and my people who are wrong!"

The hail, more than any other plague, shows us that G-d continually runs the world and keeps it in existence. By Divine fiat we came into existence and continue to be. Therefore we are also able to accept that everything comes from G-d and that everything He does is just, and for the best. And our kindness to others must flow from our connection to them – they are our kin, and our kind.
Shabbat Shalom.

(This d'var Torah was based on ideas that I heard from Rabbi Herczeg and Rabbi Weinberg which I have developed further myself)