

FATE AND RE-CREATION OF THE UNIVERSE

One of the certainties revealed through the Quran is the end of the universe. Occasionally we do hear about prediction of the end of the universe by scientists who think it likely. Generally such speculations put the timeline between 20 and 40 billion years from now.

“They ask you about the Final Hour – when will be its appointed time? Say: the knowledge thereof is with my Lord (alone). None but He can reveal as to when it will occur...” (Q. 7:187)

It will be too naïve to believe those estimates in the light of this Quranic revelation. Allah alone has the knowledge of the Final Hour. No human being can estimate it either. Man will do better by refraining from such predictions. The universe is created to run for a fixed term. The sun, earth, and the whole cosmos would not overshoot that limit.

“Don’t you see that Allah merges night into day and He merges day into night, that He has subjected the sun and the moon (to His Law), each running its course for a term appointed....” (Q. 31:29)

“And the sun runs its course for a pre-determined period: that is His Decree, the Exalted in Might, the All-Knowing.” (Q. 36:38)

“We created the skies and the earth and all between them for just ends, and for a term appointed....” (Q. 46:3)

We know stars have limited supply of hydrogen in their cores and therefore they have only limited life [1]. This indicates that the stars cannot go on forever. The finite life of the stars is a clear indication of the finite life of the whole universe.

The fate of the universe has been the topic of serious discussion following the failure of the steady state theory (which described the universe as a static system without beginning and end) and the successful demonstration of the predictions of the big bang model. Theoretical explorations to find answers to this issue are possible with the big bang model which portrays an expanding universe. Consistent with the observations of several supernovae (a supernova is a stellar explosion producing an extremely luminous object made of plasma – an ionized state of matter.) in other galaxies, the rate of expansion of the universe has been found to be accelerating. The concepts of dark energy and dark matter, which act against gravitational attraction, have been introduced to allow for the acceleration. The ultimate fate of the universe is supposed to depend on how much dark energy it contains and the value of the density parameter, omega (Ω). Density parameter (Ω) is defined as the average matter density of the universe divided by a critical value of that density. Based on these conditions, three possible scenarios have been proposed as the ultimate fate of the universe [2]. An Ω greater than 1 represents a “closed universe” In a closed universe gravity eventually brings the expansion of the universe to a stop, after which it starts to contract until all matter in the universe collapses to a point, a final singularity termed the “big crunch”. A universe is called “open” if its Ω is less than 1. The open universe expands forever. Matter will spread thinner and thinner.

Galaxies will exhaust their gas supply for forming new stars. The old stars will eventually burn out, leaving only dust and dead stars. The universe will become quite dark and, the temperature of the universe will approach absolute zero. The universe will peter out in a “big chill”. An Ω equal to 1 describes a “flat universe”. A flat universe expands forever but at a decelerating rate asymptotically approaching zero. The universe will not end in a big crunch nor expand into an infinite big chill, but will remain at equilibrium [3]. Besides these, the possibility of “multiverse” (parallel universes) is also indicated. It is assumed that our universe may be one among many universes with even different physical laws. There is also the cyclic cosmological model that suggests the universe will exist forever through cyclic repetition of big bang and big crunch.

The Quran repeatedly draws our attention to the end of the universe in order to remind us of the impending event. It also provides certain hints about the end process.

“The Day that We roll up the skies like a scroll rolled up for books. Even as We produced the first creation, so shall We produce a new one – a promise We have undertaken; truly shall We fulfil it.” (Q. 21:104)

“...On the Day of Judgement, the whole of earth will be but His handful and the skies will be rolled up in His right hand...” (Q. 39: 67)

Two points mentioned in these messages are relevant in the present context.

- The skies will be rolled up like a scroll
- The size of the universe will be reduced to a handful.

These statements relating to the end of the universe are fully consistent with the theoretical expectations of the big crunch hypothesis which predicts that the universe will eventually stop expanding and start collapsing (Fig. 1). The inward contraction towards a hot, dense state by the collapsing universe is analogous to a time-reversal of the big bang. The collapse thus leads to the end of the universe. “The rolling up of the heavens as a scroll of paper” may be considered as a metaphor describing the process of collapse of the universe while the reference to the size of the earth as “handful” is consistent with the prediction of small mass of infinite density attainable by a collapsing body (Fig. 2). The big crunch theory is thus acceptable as it agrees with the Quranic description of the end of the universe in a broad theoretical sense.

Re-creation of the Universe

As with the end of the universe, the re-creation of the universe is also a certainty. The Quranic verse cited above (Q. 21:104) also gives certain hints about the mode of re-creation of the universe. Allah tells us that the mode of re-creation of the universe will be similar to the one adopted by Him in its first creation. If we accept the big bang model to describe the cosmogony (the genesis of the universe), according to the Quran it will be by the same process that God will re-create the universe on the Day of Judgement. The end (big crunch) of the present universe being a cosmic singularity, it may serve as the big bang of the next universe. The event is described in the Quran in the context of human resurrection as sound of Trumpet (Q. 36:51) or blast (Q. 50:42) implying an explosion (big bang) that will be heard by one and all. It will happen by a single command of Allah (Q. 30:25).

“The Day they will hear a blast in truth that will be the
Day of Resurrection.” (Q. 50:42)

According to Khoury *et al.*, the universe can undergo a transition from big crunch to a big bang through a string theoretic regime which connects the two phases [4]. This scenario offers a continuum between the first and the next universe and corroborates the Quranic disclosure of re-creation of the universe immediately following the end of the present universe.

The most glaring feature of the re-created universe that distinguishes it from the predecessor is its eternal nature mentioned at many places in conjunction with the description of Heaven (Q. 3:15; 25:16) and Hell (Q. 4:93). The eternal nature is theoretically a characteristic of “flat universe” with Ω equal to 1. A flat universe will expand at a rate that is just enough to avoid re-collapse (Fig. 1). It also implies that the abioprogram relating to the re-created universe will satisfy the eternal nature as well as its other special characteristics. This proposition of the re-creation of the universe is comparable with the theoretical model of cyclic universe with the difference that the big crunch occurs only once and the re-created universe will not meet with the same fate (big crunch) as its predecessor. In other words with the creation of the next universe, the cycle completes. If that were the case, the abioprogram of the universe may have to be an integrated software for a monocyclic universe; i.e., the present and the next one (Figs. 1 and 2).

As can be expected, the re-created universe will have more or less the same environment and components as that of the present universe. Allah’s declaration (Q. 21:104) that He will create another universe as He created the first one (the present universe) also suggests that the re-created universe will have more or less the same features and conditions as the present universe. Some modifications can also be expected from the following verse.

“One day the earth will be changed to a different earth,
and so will be the skies and (men) will be marshalled
forth, before Allah, the One, the Irresistible.” (Q. 14:48)

In view of the similar physical conditions of the next universe, it is reasonable to assume that science of the present universe which Allah taught us is equally applicable to the next universe also. Therefore physics, chemistry and biology of “Heaven”, “Hell”, etc., (the components the next universe) can be understood with the same knowledge that we employ to understand our present universe.

1. Spergel, D.N., Bolte, M. and Freedman, W. 1997. The age of the universe. *Proc. Natl. Acad. Sci. USA* 94:6579-6584.
2. http://en.wikipedia.org/wiki/Ultimate_fate_of_the_universe Retrieved on February 4, 2007.
3. <http://archive.ncsa.uiuc.edu/Cyberia/Cosmos/CosmosFate.html> Retrieved on January 27, 2007.
4. Khoury, J. *et al.* From big crunch to big bang. arXiv:hep-th/01018187v4 Retrieved on March 2, 2002.

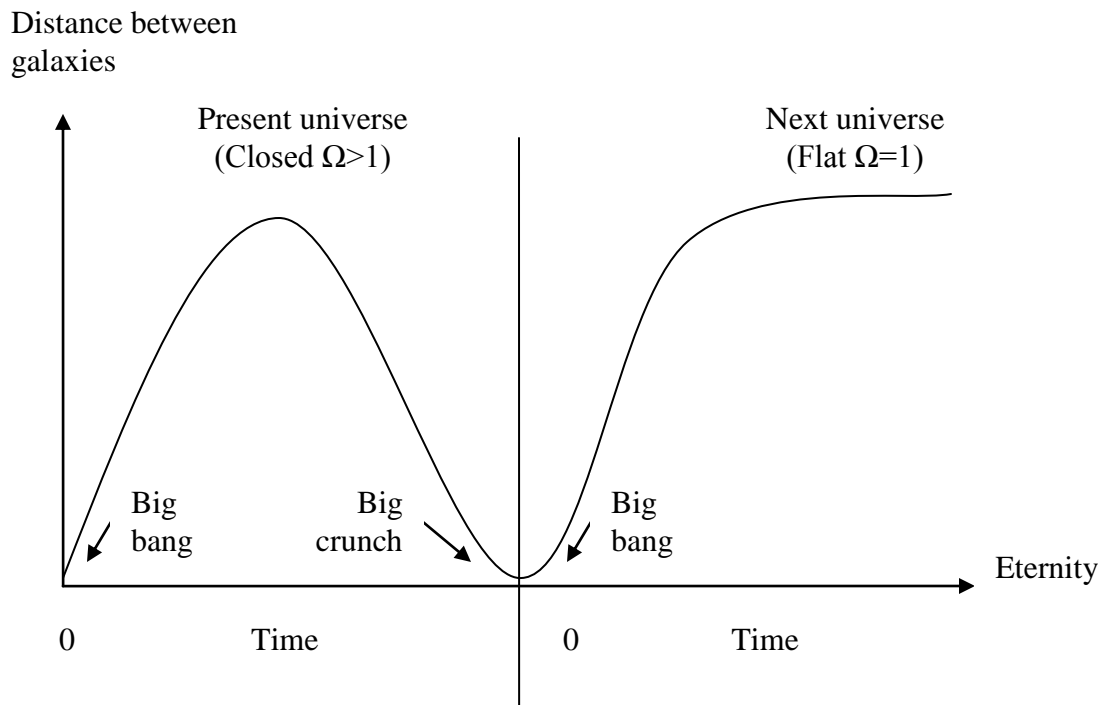


Fig. 1. Diagrammatic representation of the execution of the integrated abioprogram of the universe based on the Quran (see also Fig. 2)

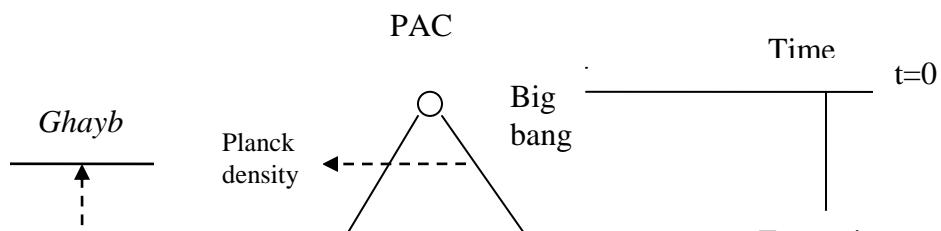


Fig. 2. Life cycle of the universe based on the Quran.
Note: Not drawn to scale. Heaven (re-created earth) must be about the same size of the present universe.