## Handouts



Figure 1. A graph of the life span of the patriarchs. Compare the life spans before the flood with those after the flood. The life span average before the flood was 912 years, after the flood 222 years.

It can be shown very simply that the long ages were not myths. This can be done by an understanding of the exponential (natural) decay rate. In nature all things decay at a certain rate. For example if you expose a container of living organisms to a radioactive substance they will die off in what is called a natural decay rate or curve. If you plot their life spans on a graph you will arrive at type of curve that occurs in fig 2. This is the same type of curve that is produced by the death rate of organisms exposed to lethal doses of gas or other toxins.

If you take the points of the population in question and graph them you can see how close the actual decay rate or curve fits the exponential decay curve. This will yield an equation and a value that is called the coefficient of determination. This is a mathematical ratio that reveals how close your graph fits the exponential decay curve.

This coefficient of determination will have a value of $0-1$. If the coefficient is 1 this is considered a perfect match.

The patriarchs before the flood had extremely long life spans. After the flood the life spans decayed until a norm of 70 years was reached. These life spans can be plotted and the decay curve calculated to see how close the actual decay curve is when compared to the mathematically perfect exponential decay curve, which has a coefficient of determination of 1 . When we do this we can show that the ages given for the death of the patriarchs after the flood were not fabricated, myths, or exaggerations.
Note in fig. 2 below that the coefficient of determination ( $\mathrm{R}^{2}$ ) is almost .89. This means that the decay rate of the patriarch's death after the flood was only $11 \%$ from being a perfect match. In other words the decay rate for the declining life span for the patriarch after the flood is very close to being a match to the exponential (natural) decay curve.


Figure 2. Graph showing the declining life span after the flood. It took 20 generations for a new equilibrium of 70 to be reached. *Peleg's brother was Joktan, which means: "he shall be made little or small," notice the life span decline with Peleg!

## Implications

- The information source (divine revelation) for the ages of the patriarchs provided ages that closely matches a natural exponential equation.
- It is highly unlikely that people living at this time knew the mathematics of the exponential decay curve.
- It is very unlikely that the ages were fabricated since they closely match the exponential decay curve, which occurs naturally.
- The ages of death show that the post genesis flood world was being affected by some natural factors that were causing the declining life spans.

All of these factor indicate that the ages given were genuine and not fabrications.
Please refer to Post-flood Longevity of Shem's Descendants chart below and consider the following:

- Noah lived 950 years. 600 years before the flood and 350 years after the flood.
- Shem lived 600 years. 100 years before the flood and 500 years after the flood.
- Arphaxad, Salah, and Eber the first three generations after the flood all had the same approximate lifespan, 438, 433, and 464 year respectively.
- 100 years after the flood Joktan the brother of Peleg was born. His name means to reduce or to make small. After his birth life spans declined almost $50 \%$.
- Peleg, Reu, and Serug the $4^{\text {th }}, 5^{\text {th }}$, and $6^{\text {th }}$ generations born after the flood also all had the same approximate life span of 235 years.
- Nahor, Terah, and Abraham the last three generations had the same approximate life spans of $148,205,175$ years respectively.
- The most interesting longevity feature is that all of the patriarchs died within a 191 year time period and the individuals in the above mentioned groups (with the exception of Nahor) died clustered around a few decades
- There was a population bottleneck because of the flood.
- The earth was destroyed by the flood which would indicate environmental rearrangements (Genesis 6:13)


The longevity of the patriarchs after the flood indicating when they were born and died in relation to each other and the flood. Notice that all the patriarchs even those born before the flood (Noah and Shem) died within a 191-year time period. Also Peleg, Reu, Serug, Nahor and Noah all died within a 52 -year time period. This indicates that environmental factors and genetic factors both played a part in the declining lifespans. *Eber's brother was Joktan.

