

POPULATION PROBLEMS IN THE BIBLE

Let us first demonstrate the population implications at the time of the Flood in the days of Noah. Beginning with an initial population of two, Adam & Eve, let us assume they had $2c$ children – c boys and c girls. These marry to form c families. Then let each of these families also have only $2c$ children, hence there will be $2c^2$ offspring in the second generation. These form c^2 families followed by $2c^3$ offspring in the third generation etc. From this it becomes obvious that in the n^{th} generation $2c^n$ individuals would be born. To keep matters simple, let us also assume that only one generation is alive at one time, thus the world population at the n^{th} generation would also be $2c^n$.

If we now allow 90 years per generation and only 3 boys and 3 girls from Adam & Eve, the world population at the time of the Flood could have easily reached: $1656 \text{ years} \div 90 = 18$ generations and $2(x)^n = 2(3)^{18} = 2(387,000,000) = 774,000,000$ souls born in only the 18th generation (an annual growth rate of 1.2%; which is less than the 2% in 1974 and 1.7% in 1993). Moreover, these people had no contraceptives and were operating under the Genesis 9:1 decree "be fruitful & multiply and replenish the earth". The biblical average life-span over the 1656 year period from Creation to the Flood was c.910 years. This means that not only many parents (17th generation = 258,000) and grandparents would still be alive to add to this total, even some great-great parents and great-great-great could have remained.

Biblically, 120 years per generation seems an even more likely figure and that would yield $1656 \div 120 = 14$ generations over the 1656 year span. If Adam produced only four boys & four girls, that could have resulted in $2(4)^{14} = 536,870,000$ souls being born in the 14th generation – a growth rate of c.1.2%. Five mating pair yields $12,207,000,000 = 1.4\%$. Obviously, a world-wide flood, exactly as recorded in Scripture, was required to bring about the destruction of so many.

Next, let us consider how only about 70 adults that came down to Egypt with Jacob (Gen. 46:27) could expand to a population in excess of 603,550 men from 20 years of age and upward who were able to go to war (Num. 1:45-46, 2:32) by the time of the Exodus. Looking at the chart on page 68 of my chronology book, we find that there are $66 - 12 = 54$ offspring of Jacobs sons available to marry and produce children over the 215 years from BC 1706 when Jacob came to Egypt with his family unto the 1491 Exodus. To this we must add Joseph's two sons, Ephraim and Manasseh, who were already down in Egypt. This brings our total to 56. As shown above, our basic formula is $2(c)^n$ where "c" is the number of mating pairs and "n" is the number of generations involved.

Now Genesis 15:16 tells us the number of generations involved is four (see my charts 3a and 3b). Obviously then, the average generation was $215 \div 4 = 53.75$ years. If we use the entire number of potential reproducing pairs we substitute in the above equation and obtain $2(28)^4$ which is $2(614,656) = 1,229,312$. Again, this is only the number born during the fourth generation. Their parents of the third generation could have numbered $2(28)^3 = 43,904$ and the grandparents $2(28)^2 = 1,568$. Although the number of parents and grandparents is small compared to the children of the fourth generation, even considering the great hardship of their slavery, many of these parents and grandparents would still be alive thus adding to any 4th generation total we may obtain. Not taking into account these of the second and third generation, the annual growth rate over the 215 year period in this last scenario would be:

$$100[(1,229,312 \div 2)^{1/215} - 1] = 100[(614,656)^{1/215} - 1] = 100[1.064 - 1] = 100[.064] = 6.4\%$$

Being smaller than Numbers 1:45-46 & 2:32 indicates, the 1,229,312 thus obtained

infers that the parameters as described in the first paragraph for our $2c^n$ formula are too narrow. This is because it does not allow for the expected increased population spurt over the final approximately 128 year hard bondage portion of the 215 years. Throughout history, slaves have always done one thing— multiply, multiply, multiply (they had no television, movies, vacations etc.).

Also, as Moses was 80 and Aaron 83 near the time of the Exodus (Exo. 7:7), many of their fourth generation would already have produced children. Finally, some of Jacob's 58 offspring may have begun to marry and reproduce in a shorter time frame than the 54 year average. Considering these last factors whereby we could justify using 4.5 for our generation variable, even our $2c^n$ formula would then yield $2(28)^{4.5} = 2(3,252,454) = 6,504,908$ which is a growth rate of 7.2%.

If these last two percentages (6.4 & 7.2) seem too high we only need recall that God told Abraham his offspring would number as the stars in the sky, (Gen. 15:5) and Deuteronomy 1:10 tells us that this was already fulfilled when Israel was about to cross the Jordan. Thus, we should expect a high growth rate.

Indeed, only two generations ago, large families were common in the USA. My maternal grandparents had 11 children; my wife's had 9 and that generation was not under a promise from our Lord. Between 1930 and 1940, the rate of increase in the USA was slightly over 7% of which about 9/10 was due to natural increase, and the other approximately 1/10 was due to net immigration (1960 World Book Encyclopedia, "population", p. 599). For decades before, it had been much higher. Hence, the number involved in the Exodus could easily go well above 3 million – perhaps as high as 5-8 million.

This demonstrates the ease in which our Lord has been able to fulfill the numbers of people given in His word.

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