

WORLD POPULATION AND BIBLE CHRONOLOGY

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A simple formula is derived which permits calculation of the population that will be produced from one initial pair in 77 generations, for any arbitrary number of children per family and generations per life span. On the basis of very reasonable and conservative assumptions, the traditional Biblical chronological framework of human history is found to be completely realistic. The evolutionary framework, on the other hand, is seen to lead to absurd and impossible conclusions. The human race is therefore, only a few thousand years old, instead of the million or more years claimed by evolutionists.

A remarkable commentary on human history is the fact that man as a whole has broken all of God's commandments except the very first. Immediately after the creation of man, God said to him: "Be fruitful and multiply and fill the earth" (Genesis 1:28). The population explosion of these latter days is eloquent testimony that this particular purpose of God in creation is being accomplished, though obedience to God is hardly man's intention in the fulfillment.

As a matter of fact, there has also been an earlier time when man filled the earth. In the antediluvian period, the Scriptures say that "men began to multiply on the face of the earth" (Genesis 6:1), and soon "the earth was filled"—but, also, it was "filled with violence" (Genesis 6:11, 13).

Some have been skeptical about the possibility that the early population may have grown so rapidly in the 1656 years recorded (Genesis 5) from Adam to the Flood. Therefore, it is instructive to make calculations on the probable growth of population.

World Growth of Population

Assume that the earth had an initial population of two people, ready to assume their responsibilities as husband and wife, and then as parents. Assume also that the average number of children per family (growing to maturity and marriage) was $2c$, with c boys and c girls. In the first succeeding generation then, there would have been c families (and $2c$ individuals, plus the first two still living). The second generation, on the same basis, would contain $c \times 2c$, or $2c^2$, individuals. In the third generation, there would be $2c^3$ individuals, and so on. The total number of individuals in the world at the end of n generations, assuming no deaths, could be calculated as:

$$S_n = 2 + 2C + 2C^2 + 2C^3 + \dots + 2c^n \quad (1)$$

The sum, S_n , can be calculated directly:

Multiply both sides of equation (1) by c :

$$S_n(c) = 2c + 2c^2 + 2c^3 + 2c^4 + \dots + 2c^n + 2c^{n+1}$$

And subtracting the first equation from the above:

$$\begin{aligned} S_n(c) - S_n &= 2c^{n+1} - 2, \\ \text{or } S_n(c-1) &= 2c^{n+1} - 2. \end{aligned}$$

Dividing through by $(c-1)$ yields the sum S_n as:

$$S_n = \frac{(2c^{n+1} - 2)}{(c-1)}$$

$$\text{Thus, } S_n = \frac{2(c^{n+1} - 1)}{(c-1)} \quad (2)$$

However, the number of people represented by S_n would have to be reduced by the number who had died since the first generation in order to get the actual population. Now, let the average life-span be represented by x generations. The people who had already died by the time of the n th generation, therefore, would be those who were in the " $(n-x)$ th" generation, or earlier. This number is:

$$S_{(n-x)} = \frac{2(c^{n-x+1} - 1)}{(c-1)} \quad (3)$$

The total population at the n th generation, then, combining equations (2) and (3), becomes:

$$P_n = S_n - S_{n-x} = \frac{2}{c-1}(c^{n+1} - c^{n-x+1})$$

$$\text{Thus, } P_n = \frac{2}{c-1}(c^{n-x+1})(c^x - 1) \quad (4)$$

Equation (4), in summary, will give the world population n generations after the first family, for an average life-span of x generations and an average number of children growing to maturity and marriage of $2c$ per family. The equation clearly demonstrates how rapidly populations can grow under favorable conditions.

For example, assume that $c = 2$, and $x = 2$, which is equivalent to saying that the average family has four children who later have families of their own, and that each set of parents lives to see all their own grandchildren. For these conditions, which are not at all unreasonable to assume, the following tabulation indicates the

population at the end of the indicated numbers of generations:

5 generations, population= 96 people.

10 generations, population = 3,070 people.

15 generations, population= 98,300 people.

20 generations, population= 3,150,000 people.

30 generations, population =3,220,000,000 people

This last number is essentially equal to the present world population, so that only 30 generations under these conditions would suffice to produce a population greater than now exists in the world!

The next obvious question is: how long is a generation? Again, a reasonable assumption is that the average marriage occurs at age 25 and that the four children have been born by age 35. Then the grandchildren will have been born by the time the parents have lived their allotted span of 70 years. A generation thus is about 35 years.

This would mean that the entire present world population could have been produced in approximately 30×35 , or 1050 years!

The fact that it has actually taken considerably longer than this to bring the world population to its present size indicates that the average family size is less than four children, or that the average life span is less than two generations, or both. For comparison, let us assume then that the average family has only three children and the life-span is one generation (i.e., that $c = 1.5$ and $x = 1$). Then, equation (4) yields the following figures:

10 generations, population = 106

20 generations, population = 6,680

30 generations, population = 386,000

52 generations, population = 4,340,000,000

It would thus take not quite 52 generations under these conditions to cause the present world population. At 35 years per generation, this would still be only 1820 years. Evidently even three children per family is too much to assume for human history as a whole.

However, the average would have to be more than two children per family; otherwise, the population would have remained static. *It begins to be glaringly evident that the human race cannot be very old!* The traditional Biblical chronology is infinitely more realistic than is the million-year history of mankind assumed by the evolutionist. If the above very conservative assumptions were made ($x = 1$, $c = 1.5$) for the over 28,600 generations assumed in a supposed million years of man's life on earth, the world population should now be over $(10)^{5000}$ people! This number, which could be written as "one" followed by 5000 zeros, is inconceivably large.

A maximum of no more than $(10)^{100}$ people could be crammed into the known universe!

The Ussher chronology, on the other hand, based on a literal acceptance of the Biblical histories, gives the date of the Flood as about 4300 years ago. The present population of the world has come originally from Noah's three sons (Genesis 9:19). To be ultra-conservative, assume that one generation is 43 years and thus that there have been only 100 generations since Noah. To produce a world population of 3 billion persons (still assuming $x = 1$), equation (4) is solved for c as follows:

$3,000,000,000 = 2(c)^{100}$ from which:

$c = (1,500,000,000)^{0.01} = 1.24$, or approximately $1\frac{1}{4}$.

Thus, the average family must have had 2.5 children in order to bring the population to its present magnitude in 100 generations. This is eminently reasonable, though conservative, and is strong confirmation of at least the order-of-magnitude accuracy of the Ussher chronology. However, a period of human history much greater than indicated by the post-Deluge chronology of the Bible is evidently rendered improbable in a very high degree by the facts of population. A million years even at this rate would produce a population of 10^{2700} people.

Effects of Disease and Wars

But what about the possibility that the great plagues and wars of the past may have served to keep the population from growing at the indicated rates? Could the population have remained static for long ages and only in modern times have started to expand?

We are unable to answer these questions dogmatically, of course, since population data are not available for earlier times. We can only say that all that we *know* about population growth is based on data from the past two centuries. There are no reliable census figures, of course, except in modern times.

If the earth's population started with two people just 4300 years ago, it would only have to have increased at the rate of 0.5 per cent each year in order to reach the present population. This is significantly less than the present known rate of population growth of almost 2.0 per cent per year. Thus there is ample provision for long periods when the growth rate may have been less than the average of 0.5 per cent.

Furthermore, there is really no evidence that the growth of population has been retarded by wars or disease epidemics. The past century, which has experienced the greatest mushrooming of populations, has also witnessed the most destructive wars in all history, as well as the worst plagues and famines.

It is interesting to note that the best secular estimates of the world population at the time of the birth of Christ yield a probable figure of about 200 million. If we apply our formula, using the very conservative figures of 2.75 children per family, an average life-span of only one 40-year generation, and the beginning of population growth with two people in 2340 B. C., the calculations yield a probable population of 210 million at that time.

Or, to take another example, consider the nation Israel, which began with the patriarch Jacob about 3700 years ago. Despite tremendous persecutions and pogroms over the centuries, and despite the lack of a national homeland for much of its history, the nation of Israel has maintained its national identity and now numbers probably about 14 million people.

This population could have been produced in 3700 years if we assume the average family size was only 2.4 children (instead of 2.5, to allow for the losses due to the above-mentioned factors), but still assuming a life-span of one 43-year generation. Using these figures, the formula yields a present world population of 13,900,000 Jews.

Thus, we conclude that all that is actually **known** about present or past populations can be explained very reasonably and logically on the basis of a beginning only about 4300 years ago, making ample allowance for the effects of wars and natural catastrophes. However, the assumption of the evolutionists that man first appeared a million or more years ago becomes completely absurd when examined in the light of population statistics.

Antediluvian Populations

According to the genealogical records of Genesis 5, there were 1656 years from Adam to the Flood. However, the population constants were significantly different then from what they now are. Men lived to great ages and evidently had large families. Excepting Enoch, who was taken into Heaven without dying at age 365 (Genesis 5:23, 24), the average of the recorded ages of the nine antediluvian patriarchs was 912 years. Recorded ages at the births of their children ranged from 65 years (Mahalaleel—Genesis 5:15, and Enoch—Genesis 5:21) to 500 years (Noah—Genesis 5:32). Every one of them is said to have had “sons and daughters,” so that each family had at least four children, and probably many more.

As an ultra-conservative assumption, let $c = 3$, $x = 5$, and $n = 16.56$. These constants correspond to an average family of six children, an average generation of 100 years and an average life-span of 500 years. On this basis the world population at the time of the Flood would have

been 235 million people. This probably represents a gross under-estimate of the numbers who actually perished in the Flood.

Multiplication was probably more rapid than assumed in this calculation, especially in the earliest centuries of the antediluvian epoch. For example, if the average family size were eight, instead of six, and the length of a generation 93 years, instead of 100, the population at the time of Adam's death, 930 years after his creation, would already have been 2,800,000. At these rates, the population at the time of the Deluge would have been 137 billion!

Two obvious conclusions appear from these calculations. First, there is no problem whatever in the reference to Cain, Adam's son, as taking a wife, building a city, or fearing avengers (Genesis 4:14-17). Second, the Flood would certainly have to be a global catastrophe if its purpose of destroying all mankind were to be accomplished.

The fact that many hundreds of millions of people may have perished in the Flood does not of course mean that we could now expect to find any of their remains. There is no doubt that, as the Flood waters rose, men would flee to the highest hills and would be the last of all living creatures on the dry land to be overtaken by the waters and drowned. They would thus not be buried in the sediments of the Deluge.

It is possible of course that occasional individuals would be trapped and buried, and their bones thus eventually fossilized, but most even of these would never be discovered later. Some few fossils of antediluvian men have possibly been found and others may be unearthed in the future, but these are bound to be very rare.

The absence of antediluvian human fossils is of course not nearly as serious a problem for the creationist as is the absence of human fossils for the evolutionist. If man has actually been living on the earth for a million or more years, there have been uncounted millions upon millions of people who have lived and died. But only a scant handful of the remains of prehistoric men have ever been found!

Population Growth from Noah to Abraham

After the Flood, antediluvian conditions of longevity continued to prevail for a while, with life-spans only gradually being reduced. Noah lived 950 years (350 of them after the Flood—Genesis 9:28, 29). Noah's three sons had a recorded total of 16 sons and, presumably, about the same number of daughters, with each family thus averaging about 10 children. From the Flood to the birth of Abraham a total of 292 years and eight generations are recorded.

By the time Abraham journeyed into Canaan, about 400 years had elapsed since the Flood. There were then apparently a number of well-populated cities and countries in the world, as mentioned in Genesis 12 through 25 (Egypt, Chaldea, Philistia, etc.). Abraham died at age 175, leaving eight sons (Genesis 25:1-8).

It seems reasonable to assume, for this 400-year period of history, say, ten generations and an average family size of eight, with an average life-span of five of the 40-year generations. That is, in our population formula, assume $c = 4$, $n = 10$, and $x = 5$. The world population at the time of Abraham (neglecting any possible gaps in the genealogies of Genesis 11) is then calculated as 2,800,000, a figure which more than adequately explains the Biblical and archaeological population inferences for this period of earth history.

The Tower of Babel seems to have been built about the time of the birth of Peleg (whose name, meaning "division," probably was given by his father Eber in commemoration of that event—Genesis 10:25) 101 years after the Flood. Using the same constants as above, the population at this time would have been only 85 people (using equation (2)). However, it is probable that at least one generation is missing in the genealogy of Peleg as given in Genesis 10:21-25 and 11: 10-16. In the corresponding record in Luke 3:35, 36, the name of Cainan is inserted between those of Arphaxad and Salah.

If we assume that, in the course of transcribing the lists in the Old Testament, Cainan's name somehow was omitted from the received text, but that his name was preserved in the Septuagint version from which Luke obtained his data, this would mean one more generation in the interim from the Flood to Babel. On this basis, the population would be 340.

This is probably still too small, but the assumed family size of eight may very well be too small for the early centuries after the Flood. Assuming an average family of ten children gives a population at Babel of over 700. An average of twelve children gives 1250. Both these figures assume 40-year generations, with, therefore, 3.5 generations from the Flood to Babel.

Since there are 70 nations mentioned in Genesis 10 as resulting from the "division" at Babel, it is reasonable to infer that there were 70 families at Babel, representing probably the generation of Noah's grandsons and great grandsons. Seventy families containing 800 or 1000 individuals altogether seem to fit the situation described at Babel very adequately.

We conclude, therefore, that the Biblical chronologies are all eminently reasonable in the light of population statistics, and that any significant departures from these chronologies, as required to meet evolutionary speculations, are highly unreasonable and improbable.

FURTHER HIGHLY SPECIALIZED ADAPTATIONS

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The writer believes that nature's adaptations are so extraordinary in complexity and finesse that it is impossible to explain them as evolved. They must have been planted in the creature by its Creator. Adaptations display incredible virtuosity.

To illustrate, the writer discusses in some detail scores of examples of remarkable adaptations for predation and defense, respiration, pupation, detection in space, locomotion, reproduction, etc.

One of the great defects of evolutionary writing is that evolutionists dodge difficulties like these and dwell on generalities. On the whole, too, they tend to avoid insects and instinct and argue about vertebrates, especially mammals. They should be held to account for specifics, especially in insects, and not excused until they produce an adequate evolutionary explanation. This cannot be done. Nature is too complex, too intellectual and too versatile.

Let the critics of evolutionary theory continue to pin evolutionists down to specifics. It will make evolutionists a good deal less arrogant.

Introduction

The finesse, intricacy and perfection of adaptation in all systems in all animals seem endless. Here are a few more samples culled from this apparently infinite series, all illustrating the artistry and virtuosity of the Creator.

For Predation and Defense

The praying mantis has an unusually long front segment of the thorax, its foremost legs no longer adapted to locomotion but large and powerful so that the tibia can be snapped back against the femur like the blade of a pocket-