

# ***How many direct ancestors do you have?***

## **Diamond Theory prevails over Pyramid Theory**

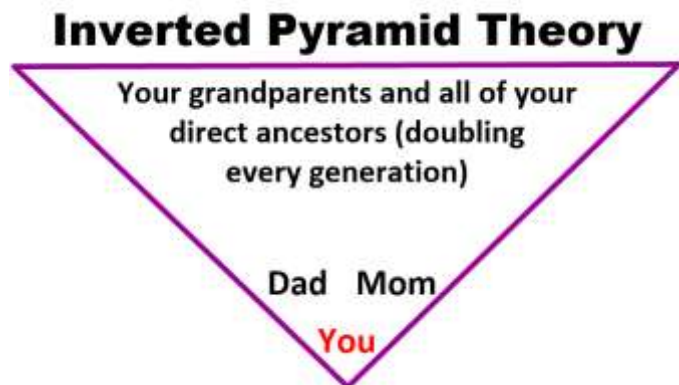
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In theory, your family tree always looks like a perfect inverted pyramid with you at the bottom, because your direct biological ancestors (DBAs) double every generation — two parents, four grandparents, eight great-grandparents and so on. Two, four, eight — that's 14 total DBAs in three generations. Going back 10 generations, you would have 1,024 8th great-grandparents at the top of your inverted pyramid, which would contain a total of 2,046 DBAs.

Every 10th generation, the number of DBAs would increase for that generation by a little more than a thousand times. After only 40 generations, you would have more than a trillion DBAs for the 40th generation and more than two trillion total DBAs including all of the earlier 39 generations. The human species has produced an estimated 7,500 generations.<sup>1</sup>



### **Two problems**

However, there are a couple of problems with the Inverted Pyramid Theory.

First, by one estimate as of 2022 only about 117 billion people have ever lived — including those of us who are alive today.<sup>2</sup> That estimate comes from the Population Reference Bureau, a private nonprofit organization. Another source cites the 2018 estimate and explains how the estimate was derived.<sup>3</sup>

Second, we have the Adam and Eve problem. The details are fuzzy, but all of us are descended from a first man and a first woman. Their descendant chart would start with two people and become ever broader as the generations pass.

So how can we explain these contradictions, especially given the fact that each of us requires two biological parents?

*The answer is cousins!* Consider the offspring of a union between two first cousins. The child would have two parents and four grandparents. So far, so good. However, the child would have only six great-grandparents rather than eight.

Any biological union between relatives narrows the shape of the chart. Even a marriage between the most distant cousins possible would have a narrowing effect. Each narrowing of the chart ripples back through all previous generations, which greatly magnifies the effect.

### **Marriages of second cousins**

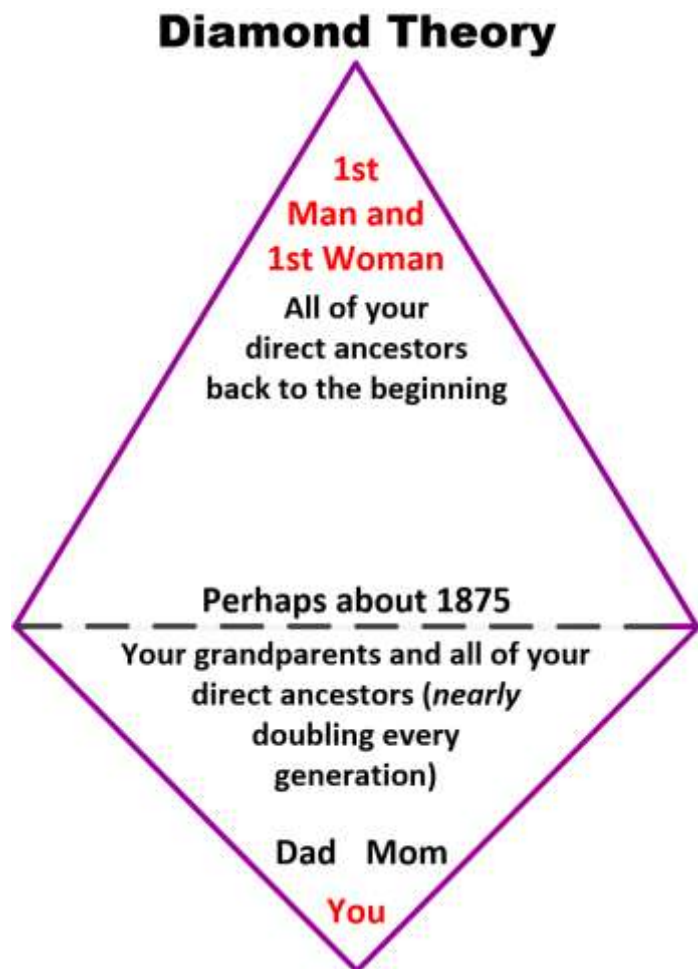
An estimated 80 percent of all marriages in history have been between second cousins, according to Legacy News blog, which discussed the Diamond Theory of Ancestors.<sup>4</sup>

The blog explained: “Why? Because the population base was smaller, people lived in small communities and migrated within those same small communities. The theory in genealogical research is that our family trees are actually shaped like a diamond, not an inverted pyramid. Tracing back a few generations gives a wider shape. Keep going and you find the shape narrowing, eventually, the theory holds, converging to only a few ancestors.”

One study shows that around the world today, 10 percent or 100 in 1,000 “marriages ... is to a cousin or other close relative.”<sup>5</sup>

Based on studies between 1941 and 1981, “An estimated 0.2 percent of marriages in the United States are between individuals who are second cousins or closer ... about 250,000 people ....”<sup>6</sup> That is a rate of two marriages in 1,000.

For recent generations in America, perhaps beginning about 1875, there is a growing tendency for fewer close-cousin marriages due to larger population bases and increased population mobility.<sup>7</sup> So going forward there should be a greater tendency toward doubling of direct biological ancestors, and the vertical pedigree version of your family tree will continue to look like a diamond.



Other Western nations may show similar decreases in close-cousin marriages. However, by comparison, non-Western cultures show higher rates of close-cousin marriages.

“Based on data from the latter half of the 20th century .... People in the Middle East and Africa marry relatives at least a quarter of the time, though in some places these numbers reach up above 50 percent ....”<sup>8</sup> In large part, this pattern is driven by a society based on close kinship, where, for example, the family rather than the individual owns property. Close-cousin marriages (including uncles and nieces) preserve the family ownership.

Cultures with higher levels of close-cousin marriages would still have diamond-shaped family trees, but the diamond profile would be narrower compared to the diamond profile of Western cultures.

In any event, the Diamond Theory does not account for events in human history that greatly impact population growth. For example, “the Black Death of 1348-50, which killed an estimated one third of the population living between India and Iceland.”<sup>9</sup> No doubt these events are included in the calculations leading to the conclusion that about 117 billion people have ever lived. Such events cause imperfections in the shape of the diamond.

Whatever the shape of our family tree, all 117 billion of us are related. We are all family. ■

## Endnotes

(1) Dillard, Annie. January 1998. “The wreck of time: Taking our century’s measure.” Harper’s Magazine 296: 51-56.

Also see “More food for thought — from Harper’s Magazine”  
<http://webhost.bridgew.edu/jhayesboh/Morefood.htm>

(2) Kaneda, Toshiko and Carl Haub. Nov. 15, 2022. “How many people have ever lived on Earth?” Population Reference Bureau (prb.org).

(3) Winegard, Timothy C. “The Mosquito: A Human History of our Deadliest Predator.” (New York: Dutton, 2019). On Page 2 the author details how the number 108 billion as of 2018 was derived. (The author also states that nearly “half of all humans that have ever lived” were killed by mosquito-borne illness.)

(4) Schulze, Lorine McGinnis. Aug. 4, 2016. “How many ancestors do we have?” Legacy News blog. (Legacy is a genealogy software product.)

(5) Henrich, Joseph. “The WEIRDest people in the World.” (New York: Farrar, Straus and Giroux, 2020) 157-158. (The acronym stands for Western Educated Industrialized Rich Democratic. The book explores the differences between

Western and non-Western cultures, and explains how those differences shape the way members of those cultures think.)

(6) Chalabi, Mona. May 15, 2015. "How Many Americans Are Married To Their Cousins?" FiveThirtyEight <https://fivethirtyeight.com/features/how-many-americans-are-married-to-their-cousins/>

(7) Yin, Steph. March 1, 2018. "When did Americans stop marrying their cousins? Ask the world's largest family tree. Researchers assembled 5 million family trees using data from the website Geni.com to test several genetic and historical hypotheses." The New York Times online.

(8) Henrich, Joseph (n 5).

(9) Tuchman, Barbara W. "A Distant Mirror: The Calamitous 14th Century" (Alfred A. Knopf, 1984); the quote is from the Foreword.

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### About the author



**1965 high school senior (colorized)**

I grew up in Coudersport, Potter Co., PA, where I graduated from high school in 1965. Then I attended Penn State. My long newspaper career began with my high school newspaper and The Potter Enterprise in Coudersport. Later I worked as an editor for Pennsylvania daily newspapers in Altoona, State College and York, and then 32 years as general manager of Collegian Inc., publisher of The Daily Collegian at Penn State. I retired in 2010.

State College has been my home for many years. My hobbies include genealogy, and I am the current president of the annual Mitchell Reunion.