

For many years now I've been using 33 or 34 years as the average length of a human generation in my TMRCA and other genetic genealogy calculations, except where specific familial or cultural data may suggest that a variant number would be more appropriate. A number of older studies have converged on 34 years, or a number close to it, as the best default estimate to use for generation length over the span of [genealogical time](#). However, many more extensive and recent studies have not converged on a lower number: 31 years is the most popular, with perhaps 33 years as the upper bound.

Until I engaged in a dialog with genealogist Donn Devine in about 2009, I had been using 30 years as an average, but feeling vaguely uncomfortable with it, as the number seemed a bit low to account for the patterns I have experienced in both my genealogical work, and my genetic genealogical analysis. It was evident to me that for purposes of TMRCA calculation the average length of a generation should be the average age of a father when his middle son was born, but I had never either made a study of this from data available to me, nor researched the topic in the anthropological literature. Fortunately Mr. Devine had already, in 2000, published a valuable article surveying the then published literature (which I have reproduced below), and these findings inspired me to perform an analysis of a typical well-worked out Scotch-Irish descendancy that runs from the early 18th century to the present day in many lines (I summarize the results of this below as well).

I had also assumed, with Thomas Hobbes, that life outside the corner of space-time occupied by modern Western Culture was typically "nasty, brutish, and short", and guessed that the classic 25 years/generation was perhaps closer to the mark for the centuries before, say, the 16th, but the several studies cited by [Devine below](#), some of what we would call primitive hunter gatherer tribes, have pointed instead to a number in the low 30s.

In light of the more recent studies, and in particular the still most cited Fenner-2005 study^[1], I've shaded my earlier preferred number, 34, down a bit, to 33 or 32 but varying with the ethnicity, place, and period of the population. Virtually all of my professional genealogical work primarily concerns the ancestries of immigrants to North America, and with all the transience of pre-1900 Americans, I remain convinced that for populations like the early generations of the Scotch-Irish a number like 33 or 34 is still appropriate, though as American populations became more settled, the average age for males at marriage may have declined by a year or three, so if I had to pick a single number (which I do when constructing TMRCA matrices) that single number would be 32.

Average Length of a Generation: an American Scotch-Irish Example

The data for this descendancy, of one Daniel Dennison who emigrated from Ireland to southwestern Virginia in the 1730s, is derived from my own genealogical research on behalf of a client, and from the client's own work, much of which rests upon a book published by another descendant of this Daniel.^[2]

Altogether, I considered the children of 86 fathers, and found that their **average age when their middle son was born was 34.43**, which agrees remarkably well with the anthropological data across several cultures, some of which most would call primitive.

Note that the culture I have derived this number from is one for which monogamous marriage, with nearly all children born in wedlock, is the norm. Since we are just looking for typical patterns here, there can be no serious objections to this simplification of the analysis.

¹ Fenner, Jack N., Cross-cultural estimation of the human generation interval for use in genetics-based population divergence studies (American Journal of Physical Anthropology 128(1Jan2005):415-423)

² T. Randle Dennison and Rachel E. Dennison, *Scotch-Irish Dennisons of Virginia, Kentucky and Points West* (privately printed, 2002)

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However, the plausibility of any such estimates ought to be consonant with other marriage patterns within the culture: the average age of the father and mother at marriage, and the average reproductive end point for most females, which is typically about 45, though in many subcultures, the average age at which females cease bearing viable children is a few years prior to that. To that end, I also include here, derived from my Dennison data, some statistics showing the average age of the father at first marriage:

	Average age of the father at 1 st marriage:
17 men born before 1800	25.8
25 born between 1800-1849	24.8
44 born 1850+	25
all 86	25.13

Females in this American Scotch-Irish culture were typically about two years younger than their husbands at marriage, and ceased having children at about age 43. Birth intervals averaged about one every two years for the first four to six children, but the interval typically lengthened a bit after that. A typical family size was 7-9 during this period, of which half were sons (7 children was more typical for the early frontier families, and 8-9 for later settled farm families). The middle son, thus, would have been born when his father was between the ages of 32-35, which is indeed consonant with the observed data.

The Anthropological Data

There are quite likely many cultures or periods of time when a culture was subject to abnormal circumstances so extreme that the averages departed somewhat from the norms, but I note that cultures and societies are inherently very stable and conservative in their important social traditions, and given the remarkable agreement in the cited data across widely disparate cultures, one might almost venture to say that these norms reflect human nature, regardless of the particular circumstances or cultural context. I would expect that in cultures where polygamy and sexual promiscuity was commonplace that the average generational length might decline to 30 or so, but no more. Whether a number more like 30 ought to be used for the vast prehistoric time scales over which haplogroup TMRCA and SNP nodal points are estimated, I leave to the archaeologists and the physical anthropologists to determine.

I also note that, contrary to some implications below, life expectancies, *per se*, were essentially irrelevant to the question of generation length, and since the term usually includes children who died before reaching the socially accepted age of mating, or even before puberty, the life expectancies of reproducing adults are likely to be much greater than they typically low numbers bandied about. Also, there is a lot of Hobbesian-style mythology floating about, little of which can be easily grounded in actual historical data.

The following article was originally published in *Ancestry Magazine* (Sep-Oct2005), © 2000, MyFamily.com. Unfortunately, when MyFamily.com pulled the plug on this journal, they failed to leave it behind in online archival form, so I have been obliged to reconstruct it, with a few minor editorial changes to the citation formats.

How Long Is a Generation?

by Donn Devine, CG, CGI

We often reckon the passage of time by generations, but just how long is a generation?

As a matter of common knowledge, we know that a generation averages about 25 years from the birth of a parent to the birth of a child, although it varies case by case. We also generally accept that the length of a generation was closer to 20 years in earlier times when humans mated younger and life expectancies were shorter.

In genealogy, the length of a generation is used principally as a check on the credibility of evidence: too long a span between parent and child, especially in a maternal line, has been reason to go back and take a more careful look at whether the evidence found reflects reality or whether a generation has been omitted or data for two different individuals has been attributed to the same person. For that purpose, the 20- and 25-year averages have worked quite acceptably; birth dates too far out of line with the average are properly suspect.

But now, researchers are finding that facts differ from what we've always assumed: generations may actually be longer than estimates previously indicated.

Several recent studies show that male-line generations, from father to son, are longer on average than female-line generations, from mother to daughter. They show, too, that both are longer than the 25-year interval that conventional wisdom has assigned a generation. The male generation is at least a third longer; the female generation is about one-sixth longer.

As early as 1973, archaeologist Kenneth Weiss questioned the accepted 20- and 25-year generational intervals, finding from an analysis of prehistoric burial sites that 27 years was a more appropriate interval but recognizing that his conclusion could have been affected if community members who died away from the village were buried elsewhere.^[3]

Why Age Matters

In a more-recent study regarding generation length, sociologist Nancy Howell calculated average generational intervals among present-day members of the !Kung, contemporary hunter-gatherer people of Botswana and Namibia whose lifestyle is relatively similar to that of our pre-agricultural ancestors. The average age of mothers at the birth of their first child was 20 years and at the last birth 31, giving a mean of 25.5 years per female generation—considerably above the 20 years often attributed to primitive cultures. Fathers were six to 13 years older than mothers, giving a male generational interval of 31 to 38 years.^[4]

A separate study, conducted by population geneticists Marc Tremblay and Helene Vezina, was based on 100 ascending Quebec genealogies. Researchers found a generational interval, based on the years between parent's and children's marriages, to average 31.7 years, and they determined that male generations averaged 35.0 years while female generations averaged 28.7 years.^[5]

Biological anthropologist Agnar Helgason and colleagues used the Icelandic deCODE genetics database to arrive at a female line interval of 28.12 years for the most recent generations and 28.72 years for the whole lineage length. Male line lineages showed a similar difference—31.13 years for the recent

³ Weiss, K. M., "Demographic Models for Anthropology", *American Antiquity* 38, No. 2 (April 1979): 1-39.

⁴ Howell, Nancy. *The Demography of the Dobe !Kung*, 2d ed. New York: Walter de Gruyter, 2000.

⁵ Tremblay, Marc, and Helene Vezina, "New Estimation of Intergenerational Time Intervals for the Calculation of Age and Origin of Mutations", *American Journal of Human Genetics* 66 (February 2000): 651-658.

generations and 31.93 years overall. For a more mathematically appealing average, Helgason and fellow researchers recommended estimating female generational line intervals at 30 years and male generational intervals at 35 years, based on the Quebec and Iceland studies.^[6]

Calculating Ideas

What does this mean to the genealogist? When assigning dates to anthropologically common ancestors 50 or more generations in the past, using the accepted 20 or 25 years as a conversion factor can produce substantial underestimates of the time interval.

For my own purposes, however, given the imprecision of the various results and my own need for an estimate that lends itself to easy calculation, I decided that three generations per century (33 years each) for male lines and 3.5 generations per century (29 years each) for female lines, might work better when I needed to convert generations into years. To check the accuracy of my values, I decided to compare the generational intervals from all-male or all-female ranges in my own family lines for the years 1700 to 2000. I was pleasantly surprised to see how closely the intervals agreed with the estimates I was using. For a total of 21 male-line generations among five lines, the average interval was close to 34 years per generation. For 19 female-line generations from four lines, the average was an exact 29 years per generation.

In genealogy, conclusions about relationships are subject to change whenever better evidence is discovered. Similarly, it's the nature of the physical and biological sciences that current understandings are subject to change as more data becomes available and that data's interpretation becomes more certain. So, for now, when genealogists want to convert generations to years and create probable date ranges, using an evidence-based generational interval like Helgason's 30 and 35 years or one that you've developed based on your own family history research may be the best solution.

Donn Devine, CGSM, CGISM, a genealogical consultant from Wilmington, Delaware, is an attorney for the city and archivist of the Catholic Diocese of Wilmington. He is a former National Genealogical Society board member, currently chairs its Standards Committee, is a trustee of the Board for Certification of Genealogists, and is the administrator for Devine and Baldwin DNA surname projects.

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⁶ Helgason, Angar, Birgir Hrafnkelsson, Jeffrey R. Gulcher, Ryk Ward, and Kari Stefansson, "A Populationwide Coalescent Analysis of Icelandic Matrilineal and Patrilineal Genealogies: Evidence for a Faster Evolutionary Rate of mtDNA Lineages than Y Chromosomes", *American Journal of Human Genetics* 72 (June 2003): 1370-1388.

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