

HANKY PANKY.

Your ancestors and mine must have played quite a lot of hanky-panky when you come to think of it.

Let's consider that you had two parents, a mother and a father and that they constituted the previous generation of your direct ancestors. Each of them had a mother and a father and those four people constituted the generation before that. The number of your direct ancestors in each of the previous generations of your family is given by $N=2^G$:where G is the number of the generation such that you are the zeroth generation your parents are the first generation and your grandparents are the second, et cetera.

For the purposes of the next step, it is conservative to assume that a new generation is born every twenty four years. The generation of your direct ancestors alive when William the Conqueror arrived in England was probably generation number thirty nine.

$$2^{39} = 549,755,813,888 \quad \text{say } 5.5 \times 10^{11}$$

But, at present the world's total population is estimated to be 6.3×10^9 . Obviously something has gone awry in this calculation.

The only error we can have made is to assume that parents were not immediate blood-relatives.

If generation 39 of your direct ancestors consisted of every person then alive in the world, say 500million, then our formula should have been $N= 1.58^G$. That would mean, in the long run, each person has had only one and a half of their parents from the previous generation¹. In other words, it must have been relatively common for folks to mate with their progeny or their siblings.

Interestingly, the long term genetic consequences of incest don't seem to have been all that bad.

¹ It would also mean you were related directly to William himself and King Harold and every other crowned head of state - not to mention Uncle Tom Cobbley and all.