

Looking at the Yinrih's population growth

Yinrih live on average around 724 Terran years and mature at around 53. Since they're semelparous, once they lay their egg they're out of the running, so the cohort size is only dependent on the size of the previous cohort.

For my first method, let's say the lifespan is 700 to make the math easier, and let's assume because of social factors they don't reproduce until around the age of 100.

The average litter size is 1.5 times the number of contributing parents. Let's say that once you account for childhood death, infertility, conscious decision not to have pups, etc, the number of pups in a litter that go on to become parents is about 1.2 times the size of the childermoot.

Let's say at year zero there are 50000 newly hatched yinrih. They reproduce at year 100, giving a total population of $50000 * 1.2 + 50000 = 60000$. This trend continues until year 700. The first cohort of 50000 yinrih dies, so from here out we subtract the population older than 700. The population reaches 3 billion (my threshold for achieving orbital flight) at around the year 5750.

For my second strategy, I used the same starting numbers, but this time I got the present population by summing the cohorts younger than 700. The good news is I came up with a similar result, with the population reaching my 3 billion threshold around 5250.

For my final approach, I used Yih years instead of Terran years, and I used the more accurate average lifespan of 492 Yih years (724 Terran years), and assumed the average age of reproduction at 71 (around 100 Terran years again). Then I did more or less the same as method two, summing all the cohorts younger than the average lifespan of 492 Yih years. I get to my 3 billion mark between 4260 and 4331 (6262 to 6366 Terran years). This one's a bit later than the other two but I might go with it since I used more accurate numbers.

Now here's the rub. That 50K number represents the population at the year 0 AK (after kindling), which is only an approximate date for the dawn of sapience, specifically it represents the earliest writings that can be accurately dated, and not the actual dawn of sapience. At this point Shamanism was active and language was in full swing but nonsapient yinrih still existed. I have A LOT to cram into that 6 millennia, the Theophany, the disappearance of the original shamanists, the Shakeoff, and a ton of technological progress and social change.

6 millennia sounds like a lot, but it only represents about 8 yinrih lifetimes. Scaling to a human lifespan that's about 600 years. 600 years to go from the paleolithic to the space age. We could assume, as I've been doing this whole time, that a combination of having writing from the start and religious zeal driving further innovation gives yinrih 4 massive legs up. I've also said that they don't

necessarily achieve milestones at the same rate or in the same order as humanity.

I could also move the goalpost and push back that magic 3 billion population count for the sake of making things seem more reasonable. But otherwise I don't know.

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