

Meditation on Ancestors

Jon Cleland Host, 10.17.06

(by now lights have dimmed from 100 % during announcement, down to 60% during candle lighting to remember people, down to 20 % now)

Sit comfortably, we are going to spend some time with our ancestors - all of them. Breathe deeply. Look at the fire, or close your eyes, or stare as you like. As the year nears its close and more leaves fall each day, this is the traditional time that the dead are closer to us. You can almost feel their presence. *(lights slowly continue down)*

Who are some of the dead you remember? Friends, relatives? Grandmother, father? We each have four grandparents - who were or are they? What about our 8 great-grandparents, or our 16 great great grandparents? They all experienced a lot in their lives - many nurtured and loved your grandparents, and may even have dreamed of you, their descendant. *(lights all the way out by now)* They lived around the time of the Civil War. Now step back to their great grandparents, just 4 generations or about 100 years. Now each of us has 256 great (said 6 times, or 6th power) grandparents, who lived around the time of Thomas Jefferson & George Washington. Look how the numbers go up! By going back 500 years, to when Columbus “discovered” America, many of your great 18th power grandparents were alive, and numbered around a million! Of course, there has been a lot of overlap ((1)), so many of those ancestors are probably your direct ancestor by more than one branch of your family tree. But look what this means - it means that by going back only a little ways, say only to the Dark Ages, specifies 560,000,000,000,000 people!, that’s a half a quadrillion people! Of course they weren’t all separate people. The entire world’s population then was only a few hundred million people (200,000,000 - which is 0.00003% of the previous number). So it’s simpler to just realize that if we go look at people more than a millenia or so ago, everyone of us is a direct descendant from nearly everyone in our race. Going back just a few millennia, we are directly descended from most of the humans alive on the planet at the time. ((2))

Four millennia ago the great pyramids were built in Egypt, and Stonehenge was built in England mostly by our direct ancestors. We are their children. Think of their lives, hauling the stones, sweating, pulling,

living, loving, dying. What of their religion? In Egypt, they worshipped Gods like Ra and Set. The religion of Stonehenge had something to do with the sun and moon, but no written records exist. Think of those ancestors of us all, close to us here in this room (*hooded guests enter silently and walk around*).

Now go back farther - another 1,000 generations (*((about 25,000 years. note - I'll put ages in years within ()), but I suspect that simply mentioning the number of generations will fit better))*). Our ancestors now have a religion that has left us today with mother goddess figurines and stone circles scattered over Europe. They have art and culture, and they painted beautiful murals in France. Who were they? What were their day-to-day lives like? They probably married, and had elaborate funerals. Can you see their loving faces in your mind?

Farther still: we have now journeyed back a total of 50,000 generations (*(~ 1.5 million years)*). We've named these ancestors "Homo Erectus" (upright man), and if living today, these ancestors would appear a lot like us. Think of sitting with them to chip stone tools, or to plan the next hunt. Or imagine them bravely leaving their homeland in Africa, hardy bands of pioneers, facing the dangerous new land of Europe. The Pleistocene was a hard time to live in, and so a taste for fats and sugars evolved – tastes that can lead to problems today. Tribal conflict selected for our tendency to view outsiders with suspicion, and competition within the tribes gave us brains that can be jealous, power-hungry, and oppressive. Good motivations evolved too, like remembering a friend, or helping your tribal community. In some ways, these ancestors are with us today, especially in many of our ways of thinking, and in our large brains.

More ancestors? Farther back? Yes. Continuing back to 100,000 generations (*(3 million years)*), our ancestors are called Australopithecines, like the famous woman Lucy. Only about 4 feet tall as adults, they had some characteristics of chimps, and lived in towns in the African sun. Onward! Our more distant ancestors beckon to us from the dark mists of time! (*the guests are walking stooped over*).

Our ancestors 2 million generations ago (*(15 million years)*), our great (say "great" 2 million times) grandmothers and grandfathers, are sitting in their camp right now, eating fruit and gossiping in their own way about who is interested in whom. Their lives contained rivalries, politics, and family

connections. They have just left the jungle to forage on the open African plains, and now fear the lions and hyenas.

Before that, 8 million generations (*(40 million years)*) before us, our ancestors live on branches in the jungle. Much like monkeys, they swing happily from branch to branch. They feel the wind in the hair on their arms and legs as they leap; the males work hard to impress the females. What is it like to live that high in the branches, rarely touching the ground? In your mind, ask them.

Around 12 million generations ago, life for our ancestors was hard. The trees offered little safety from the flying theropod dinosaurs seeking to snatch our ancestors for dinner. Why be in the trees? They don't know - but that's where they were born. They shuddered to hear the high-pitched cry of their predators, always aware that razor sharp talons could be a heart's beat away. Yet, there were times of calm. Picture one of our ancestors gazing up at the tranquil evening sky. A small star appears, slowly becoming brighter. Soon it is brighter than the full moon, and her sisters and brothers have turned to see this light. Brighter still, it now casts sharp shadows on the leaves, and is too bright to look at. It streaks overhead, then vanishes over the horizon. A huge flash blinds many of them, then a monstrous red mushroom cloud silently rises over the distant mountains, trailed by an immense column of rising debris. The shock wave approaches. Without warning the shock wave hits, stripping the leaves from the trees and casting many to the ground below. Silence again, except for the cries of the survivors, which cannot be heard, because the shock wave has deafened all. But the real horrors are yet to come. Within minutes meteors are all over the sky, and within hours entire forests burst into flame. After the inferno, darkness covers the earth, killing the plants and plunging even the tropics into a cold, snowy winter that lasts for more than a year. The terrors called the dinosaurs are gone, yes, but starvation and freezing have taken their place. Our ancestors crawled through the wreckage of the ruined world, desperately seeking food, seeking warmth. Some, against all odds, survived. (*guests on all fours*)

Even earlier, around 20 million generations before *today* (*(80 million years ago)*), our small, shrewlike ancestors cowered in the underbrush, living in the shadows of the terrible dinosaurs. Scampering quickly away from any disturbance, they were active at night, their thick fur keeping them warm, and the dark providing some cover from the snapping teeth and

clutching claws that ever threatened. Many of our ancestors felt the pain of a claw or tooth slicing into their body, writhing, then falling limp. Others began to hide more and more in the trees - which were a safe haven at first, at least they were before some of the dinosaurs evolved feathers and flight. Listen to the roar of dinosaurs, and clutch your young to your chest, holding them from danger. *(guests on all fours)*

How did we live before that? 100 million generations before us *((200 million years ago))*, our ancestors first evolved the ability to feed the babies with mother's milk. The reptile young's food is always uncertain, yet here sleep our babies, sated with warm milk from a loving mother. Imagine the rich taste of that first milk, and the ease of not needing to make captured prey soft enough for a baby's small mouth.

150 million generations *((340 million years))* ago our ancestors looked a lot like lizards. No fur nor warmth, yet our young survived, hatching from eggs on land as the land was colonized. They looked across the open land, the first vertebrate pioneers on seemingly alien territory. What do we still have from them? Their simple minds know to fear, to fight, to run - responses we still feel today when danger threatens.

Around 200 million generations ago, drying ponds forced fish to either survive short ventures onto land, or die. Our ancestors faced the parched feel of the air on their skin, and left the comfort of the water. Land was a tough place to be, and wriggling like fish with only stubby little legs was clumsy - yet, our ancestors survived. Their eyeballs hurt as they started to dry, and the dirt clung to their skin. How would that feel?

(guests lying flat, moving a bit)

300 million generations (500 my) ago, our ancestors experienced the joy of swimming! Sleekly powering through the water, leaving a wake of swirling foam. This was moving faster than any living thing had ever moved - now to see a morsel of unsuspecting food, and snatch it away before it even knew what hit it! The power, the grace, the speed! Have we all experienced that thrill, to be in complete and instant control of where we are? This was life! With fins, and before, with just an eel-like body, the water flows over us as we speed along.

(guests will have to crawl around again)

How big is big? 400 million generations ((500 my)) ago our ancestors looked like small eels, or large worms. The growth in size had taken us beyond the tiny creatures we had been, now the offspring were slowly becoming larger, and eyes began to develop. Sight, so easily taken for granted, appeared! No longer would we wonder what was out in front of us, for now we see!

Can all these cells get along? Going back 1,200 million generations ((600 my)), our ancestors had just formed as separate animal bodies from clumped, cooperative cells. It was the dawn of a new age, as when individual humans grouped together to form the first Nations. Some cells specialized to a specific task, and soon all were hopelessly dependent on one another. Tiny worms were all we were back then.

(guests lay flat, not moving)

Separate cells floating in the ocean - that is how our ancestors existed for a billion years. Back 5,000 million generations before today ((800 my)), the largest life on earth was microscopic. Our ancestors floated in the ocean, perhaps showing us today how to be accepting and tranquil. They are silent, they are invisible - yet they are everywhere in the water. Just as today, where the bacteria that are like them fill every niche of our lives, on our hair, clothes, and yes, this room.

The generations are going quickly now; bacteria can reproduce themselves in less than an hour, so your great grandchild is only 3 hours younger than you are. So different, yet still with us today - many of our genes, and our ability to breathe air, all were invented by these ancestors.

(guests sneak out - they can no longer be seen)

Back now 15 trillion generations, our ancestors are just forming into what we'd call life. Chemistry has produced an oil slick on the surface of the oceans, a mix of organic molecules. Some of these can copy themselves, and the waves crashing on the rocks form tiny bubbles - tiny cells. The planet looks dead, but no longer can it be called that. Do these new forms of life have any consciousness? How do we relate to these, our ancestors? And they are forming out of the rocks and water, so what is a generation

here? Are we so centered on our own way of existing that even this, on our own planet, feels alien? (*(((3 billion and some years ago)))*)

Generations can no longer be counted, but remember that the stuff that formed those bubbles, the rocks, the water, the carbon, etc - all formed first from the explosions of dying stars - billions of years before the earth formed (*(earth formed 4,600 million years ago, the stellar explosions I'm talking about were probably about 10,000 million years ago = 10 billion)*). The earth, forming from the accumulated wreckage of these stellar explosions, had the materials needed for life to arise. Our ancestors include those dying stars, which billions of years ago exploded as supernovas too large to be imagined.

To connect with our ancestors is to connect with this long, awesome story of evolution. To connect with our ancestors is to connect with stars, galaxies, bacteria, worms, fish, salamanders, furry critters, monkey, chimps and humans. We are their children. We are the universe, turning to look in awe at what we come from, and what we have become. Could we be any more blessed?

NOTES:

1. Overlap is an essential thing to understand. Overlap is when a given person, say Thomas Jefferson, is your great⁶ grandparent by more than one "route", in other words, he's your:

father's mother's mother's mother's father's father's mother's father, while he is **also** your:

mother's father's father's mother's mother's father's father's father. In other words, two of his great⁵ grandkids got married, or some such. Yes, this is inbreeding, but that's what happens, a lot, since we are all related, and we don't even have to go back very far to be related.

As we go back in time, the number of great^X grandparents goes up extremely rapidly, and is very quickly many times the entire population of the planet at the time. "Overlap" is the reason that explains why we still had that huge number of great^X grandparents even though the total population is much less - it's because we are double (triple, quintuple...) counting people.

2. This is pretty mathematically heavy stuff. Maybe separate it by making it an earlier reading or some such. On one hand, without understanding this the whole meditation is much less powerful, on the other, including it within the meditation may be disruptive to the mood.

3. There are many possible ways that life may have first arose, and many of them are of course beyond the scope of a service that we are trying to make more experiential and less academic! However, one likely route is relatively simple. The early earth had a soup of organic materials, forming what was like an oil slick on the surface. Waves crashing on rocks formed tiny bubbles - think of a soap bubble in the air. It has air inside and outside, with a thin layer of water. These were similar in that they had a thin layer of oil (stabilized by a phospholipid bilayer), with water outside and a watery mixture inside. That's pretty much all a bacteria is.

Calculation of the number of generations:

	Gen Step	Gen Length				
	1	24				
	Generatio n	Number of people needed	Years ago	millions of generations	Gen Length (years)	Mil. yrs ago
parents	1	2	24	0.001	24	0.024
grandpare nts	2	4	48	0.01	22	0.244
great grandpar.	3	8	72	0.05	20	1.244
2G grandp	4	16	96	0.10	16	2.844
3G	5	32	120	0.20	11	5.044
	4	6	64	2	5	14.044
	5	7	128	8	5	44.044
	6	8	256	13	4	64.044
	7	9	512	20	2	78.044
	8	10	1024	100	2	238.044
	9	11	2048	150	2	338.044
	10	12	4096	200	1	388.044
	11	13	8192	300	1	488.044
	12	14	16384	400	0.3	518.044
	13	15	32768	1,200	0.1	598.044
	14	16	65536	5,000	0.05	788.044
	15	17	131072	15,000,000	0.0002	3787.044
	16	18	262144			
	17	19	524288			
	18	20	1048576			
	19	21	2097152			
	20	22	4194304			
	21	23	8388608			

22	24	16777216	576
23	25	33554432	600
24	26	67108864	624
25	27	1.34E+08	648
26	28	2.68E+08	672
27	29	5.37E+08	696
28	30	1.07E+09	720
29	31	2.15E+09	744
30	32	4.29E+09	768
31	33	8.59E+09	792
32	34	1.72E+10	816
33	35	3.44E+10	840
34	36	6.87E+10	864
35	37	1.37E+11	888
36	38	2.75E+11	912
37	39	5.5E+11	936
38	40	1.1E+12	960
39	41	2.2E+12	984
40	42	4.4E+12	1008
41	43	8.8E+12	1032
42	44	1.76E+13	1056
43	45	3.52E+13	1080
44	46	7.04E+13	1104
45	47	1.41E+14	1128
46	48	2.81E+14	1152
47	49	5.63E+14	1176
48	50	1.13E+15	1200
49	51	2.25E+15	1224
50	52	4.5E+15	1248
51	53	9.01E+15	1272
52	54	1.8E+16	1296
53	55	3.6E+16	1320
54	56	7.21E+16	1344
55	57	1.44E+17	1368
56	58	2.88E+17	1392
57	59	5.76E+17	1416
58	60	1.15E+18	1440
59	61	2.31E+18	1464
60	62	4.61E+18	1488
61	63	9.22E+18	1512