

Chapter 6: Human Evolution as Biocultural Evolution

There is a considerable literature from biologists explaining the evolution of morality, except that they define morality as altruism and cooperation, which is not the way anyone who thinks about morality actually defines it. Morality is the knowledge of right from wrong, and the injunction to do what's right. What is significantly different from the biological usage is that morality involves knowledge and rule-governed behavior.¹ Do chimpanzees have it? Chimpanzees certainly don't behave randomly; they generally know what they are expected to do, and what will happen to them if they don't do it. But there is a fundamental difference between not doing something because you realize that you can't get away with it, and not doing something because it is simply wrong, and we just don't do that. The latter is morality. (The former, according to the Kantians, is prudence.)

The origin of morality is the origin of humanity.² As noted in Chapter 2, a widely misunderstood origin myth explains it fairly clearly. Once upon a time, thought the ancient Hebrews, the first man and woman lived in a beautiful garden. They were physically human, and mentally human (that is to say, they conversed about things), but not socially human. They did not know right from wrong. They lived more or less like the other animals, naked and without rules to guide them. In fact, they only had one rule: Don't learn the rules. The rules were there in the fruit of a tree – the Tree of the Knowledge of Good and Evil. But because they were little more than talking animals in human form, they couldn't even follow the one rule they had, and eventually ate the fruit, and learned the rules, of which the first was: Get dressed; animals are naked, and you shouldn't be. Once they learned the rules, though, there was no turning back. They were cast out of their idyllic garden life, and became real people, who had to work to feed themselves, and lead lives of labor and sorrow.³

The story in Genesis is only trivially about the biological origin of humanity (Genesis 2); it is more significantly about the cultural origin of the human condition (Genesis 3). What makes us human is knowing right from wrong, and once you know right from wrong, you can't go back to that state of blissful ignorance. That state of ignorance is amorality, and it is only partially tolerable in those who, broadly speaking, aren't considered quite fully human: animals, children, and strangers.

So amorality is not an option, goes the story, because once Adam and Eve ate that fruit they became essentially modern humans, that is to say, they became moral creatures – as are we, their descendants. But without amorality as an option, there are still two paths: morality and immorality. When Cain kills Abel, he knows it is wrong, but he does it anyway, and tries to cover it up. That is immorality, and that is not tolerable either. What we are left with is the most fundamental aspect of human society – any human society. *You must learn good from evil, and choose good, or you aren't welcome here.* The rules concerning good and evil may vary locally, but if you don't know them or don't follow them, then you cannot be a member in good standing of society – any society, anywhere.

The Garden of Eden story is thus far more significant and universal than the creationists would have it. It is about the cultural origin of the human condition: it attempts to explain the existence of rule-governed behavior, and the necessity of adherence to those rules. Without those rules, we would be animals – and I use “animals” in the cultural sense of “subhumans,” not in the biological sense of “non-photosynthesizing multicellular organisms,” which of course we are. And if we do not follow the rules, we will be unwelcome here, or anywhere. That point is made repeatedly in Genesis, not just to Cain, but to Noah, the only goodie in a world of baddies;

and to Lot, who barely manages to escape the baddies of Sodom and Gomorrah. At least the baddies have now become more localized, and less global, but it is still about good and evil, which Adam and Eve did not have to bother with while they were in Eden.

There are a lot of ways to interpret that story, but creationists believe it should be taken essentially at face value. And at face value, it is far more about the genesis of the human condition, than of the human species.⁴

The evolutionary biologists who model “morality” focus on the Darwinian imperatives of surviving and breeding, which all species are obliged to obey. Morality, however, actually turns those Darwinian fitness imperatives on their heads. The most fundamental moral imperatives take the fitness imperatives as given, but make them more difficult to meet.

Given that you must eat to survive, there are some things that you cannot eat: Other people.

Given that you must reproduce, there are some people that you cannot mess around with: Other family members.

If maximizing your survival and breeding were really the issue, we wouldn't be crossing things off the list of available foods and partners. Morality is fundamentally rules, rules are fundamentally taboos, and the two most fundamental taboos are against cannibalism and incest. The rules are so basic, in fact, that to break them is almost literally unthinkable. Of all the food taboos in the Bible (you can't eat pigs, rabbits, camels, lobsters...), people aren't even mentioned. It's not that people are kosher, it's that eating human flesh is so absurd that it is actually off the Mosaic radar. The Bible talks about it as the final act of desperate, godless people, for example in Leviticus 26.

And if ye will not ... hearken unto me, but walk contrary unto me, then I will walk contrary unto you also in fury; and I, even I, will chastise you seven times for your sins. And ye shall eat the flesh of your sons, and the flesh of your daughters shall ye eat. And I will destroy your high places, and cut down your images, and cast your carcasses upon the carcasses of your idols, and my soul shall abhor you.

Incest is even more interesting. God says “You should honor the Sabbath” (Commandment #4), but doesn't even bother to devote a commandment to “Don't fuck your sister.” He eventually gets around to prohibiting that act in Leviticus 18:9, along with a proscription against dalliances with other family members.

Strangely, though, the Bible is ambiguously tolerant of incest. The Genesis patriarch Abraham actually admits to being married to his half-sister, Sarah. (That won't be prohibited, though, until two books later.) His nephew, Lot, escapes from Sodom and Gomorrah with his wife and daughters, although his wife gets turned into a pillar of salt on the way out; but as soon as they reach safety, his daughters rape him. Nevertheless, despite their heinous crime, they don't spontaneously combust afterwards, they just give birth to children named Moab and Ammon.

Weirdest of all is the good man, Noah, who lands the ark, lets the animals out, sees the first rainbow, and promptly gets plastered. And while passed out, he is visited by his son, Ham.

And he drank of the wine, and was drunken; and he was uncovered within his tent. And Ham, the father of Canaan, saw the nakedness of his father, and told his two brethren without. And Shem and Japheth took a garment, and laid it upon both their shoulders,

and went backward, and covered the nakedness of their father; and their faces were backward, and they saw not their father's nakedness. And Noah awoke from his wine, and knew what his younger son had done unto him. And he said, Cursed be Canaan; a servant of servants shall he be unto his brethren.

What the text of Genesis 9 says is that Ham tells his brothers that he saw daddy naked, for which Noah curses Ham's son, rather than Ham himself.⁵ This is hardly fair, since Canaan didn't do anything wrong, and all his father did was to tell his brothers that Noah was naked. It certainly wasn't Canaan's fault that Grampy passed out in his birthday suit, like the drunken sailor that he was.

Many centuries of reflection on this passage have led to the conclusion that it makes little sense either in terms of the magnitude of the crime committed, or the (in)justice meted out. In fact, the Bible never says anywhere, even subsequently, that a boy should not see his father naked, much less that his own son will be cursed if he does. There is presumably some kind of tacit sex crime in the missing parts of the story, involving the son and the father.⁶

Both Lot and Noah are apparently victims of a form of incest – a sexual taboo involving a family member – in one case explicitly with daughters, and in the other case implicitly with a son. In both cases, though, the act is so powerful that it is probably about something else altogether – namely, politics. These are origin myths, although of a perverse sort. Back in the day, when writing was about as much of a novelty as sexting is today, there were several loosely affiliated “tribes” jockeying for position (and land) in the Near East. Three of the most prominent were the Ammonites, the Moabites, and the Canaanites. And of course, the Hebrews, who wrote the stories that have come down to us. And they all took identities from mythic ancestor/founders. The Hebrews claimed to be descended from Noah's great-grandson Eber (through one of the good sons, Shem); and thence from Jacob, who changed his name to Israel, and were thus the “children of Israel”.

And who were their rivals descended from? The products of horrible sexual crimes: Noah's bugging son and Lot's twisted daughters - Canaan, Ammon, and Moab.⁷

The point is that incest is as much a political crime as a sexual crime in the Bible. It degrades the offenders into the indefinite future of their descendants, and even might suggest that those descendants are unworthy of land rights. That's powerful stuff.

Incest and cannibalism are primal and universal taboos. To accuse someone of them is both political and dehumanizing. When the Romans wanted to demonize the Christians, they accused them of drinking baby blood, and centuries later, when the Christians wanted to dehumanize the Jews, they accused them of the same crime. In the modern imagination, vampires drink human blood, and zombies eat human brains. People just don't eat people, just as people don't have sex with family members. Sure, there are rare exceptions, like the Donner Party, who were starving in the snowy Sierra Nevadas in 1846; and the dynastic pharaohs, who were living gods, after all. But mostly, if you accuse someone of either of those things, you are strongly implying that they are other-than-human. You are saying that they don't abide by the most fundamental rules that govern human societies. And you can say that in pretty much any language, for the taboo, and the implications of being accused of violating it, are pretty much universal.

And that is morality at its most basic. The things that you simply cannot do, for people simply don't do them, and to do them is to effectively cease to be a person. There are boundary cases, of course. Ingesting your partner's sexual fluids can be a very good thing, and not an act

of cannibalism, although when an angry New Yorker shouts “Eat me!” they don’t intend it as a compliment. Likewise, marrying your first cousin still accounts for about 15% of marriages globally, and has actually only been considered incestuous in recent historical times.⁸ It isn’t prohibited in the Bible. Charles Darwin’s wife, Emma Wedgwood, was his mother’s brother’s daughter. In fact, that marriage is legal today in California, New York, and Alabama; and illegal in Texas, Michigan, and Nevada – regardless of the fact that most modern Americans would have the same visceral reaction against cousin marriage that they have against sibling marriage.

The Origin of the Cannibalism Taboo

Why can we not eat human flesh? In a strictly Darwinian universe, it seems to be maladaptive; after all, anything that must eat to survive would probably have a better chance of surviving if it didn’t pass up that large package of protein that used to be Uncle Bob. Chimpanzees are not quite so fickle. When they kill one another’s babies, they eat them. Interestingly, however, when they kill other adult chimpanzees, they usually don’t eat them – although they have been known to take a few bites out of a dead grown-up here and there (usually the genitalia, as long as I have your attention). We have no idea why they make the distinction between youngsters being food and oldsters not. Humans don’t make it; members of our own species, whatever their ages, are simply not food.

Chimpanzees exhibit food preferences, but not taboos. Food taboos are generally part of being human, which involves imposing arbitrary symbolic divisions upon the natural world, and feeling somewhat arbitrarily that certain things are food and certain things are not food, in spite of the fact that both classes of things may be completely edible. The taboos are learned, not instinctual, because they change with the times, while still evoking diverse forms of repulsion or aversion. John the Baptist, for example, would have eaten a bowl of locusts and been appalled at the idea of eating a McRib sandwich, following the kosher laws laid down in Leviticus; but you would be hard-pressed to find a Christian or Jew today who would eschew the barbeque in favor of the bugs.

Not eating other humans is simply the food taboo that is most fundamental and universal. Most food taboos are more provincial: some peoples eat pig meat, others don’t; some peoples eat dog meat, others don’t; some peoples eat insects, or poisonous pufferfish, or Twinkies, or whatever weird things happen to be in their environment and might be nutritious, tasty, or fun to eat. This is not a biological universe, contrasting things that are healthy and filling and digestible against things that aren’t; but a symbolic universe, contrasting things that are considered proper and acceptable to be eaten against things that aren’t.

Symbolic boundaries are fundamental to human thought, but of course they are imaginary. Those boundaries are crucial to group identity, and they may be cast in terms of what is considered appropriate self-adornment, or how to communicate properly – that is to say, the “boundary work” of culture. In this case, however, the symbolic boundary lies not between those who wear saris and those who wear blue jeans, or between those who distinguish between the “S” sound and the “Sh” sound and those who don’t⁹ – but between those who count as human and those who don’t. The rule is: Animals eat people, people don’t.

One of the most striking expressions of this distinction can be found in the process of giving birth, which differs in some key ways between apes and humans. A pregnant ape squats, and since her infant’s head is smaller than a human infant’s head, she discharges the child quietly

and alone. Then she proceeds to eat the placenta and umbilicus. Human mothers do not; in fact the only culture anthropologists know of in which human mothers sometimes do consume the placenta is among modern urban Californians (and their acolytes). Actress January Jones made gossip headlines when she revealed to *People Magazine* that after giving birth in 2011, she had the placenta dried and made into capsules, which she regularly consumed afterwards.¹⁰

It's cool. It's hip. It's natural. For monkeys, that is. Humans generally have someone ritually dispose of the placenta (because there is someone else there, because giving birth in humans is so much harder than it is in other primate species). Like eating a cat, there is no biological reason why you can't do it, you simply consider it disgusting and eat normal food instead. The reason that humans all over the world don't eat their placentas is symbolic: the act is cannibalistic. And the reason that the placenta is disposed of carefully and governed by ritual and taboo is that it is more like a human corpse than like a porterhouse steak.

Human corpses are, of course, universally treated ritually. There are rare cases in which part of the ritual involves eating a bit of the deceased, but that simply goes to show how symbolically charged life and death are.¹¹ According to the ancient Greeks, the titan Cronos ate his children (who eventually became the gods), and of course they were not human. But when it comes to human heroes, like Achilles, there are certainly plenty of threats – Achilles stands over mortally-wounded Hector and tells him that in his rage he could butcher and eat him on the spot¹² – but of course he won't. That has been the norm in human war since then too: you may inflict horrible indignities upon your enemies, but you refrain from eating them, because that says something beyond horrible about you. Of course, if you want to convince others that you aren't human, that's also a pretty effective way to get their attention.

A dead human body is a symbolically powerfully charged object. Most cultures have taboos about even touching it, much less eating it. But of course, humans don't leave their corpses out, but dispose of them, like the placenta. The disposal may involve defleshing, burying, burning, preserving, praying, feasting, or other kinds of practices, and may vary with the status of the deceased – but the dead body is treated ritualistically, not naturalistically. There is plenty of protein to be had in both the new life and the new death, but humans don't avail themselves of it. It's yucky, and it just ain't proper. That is the symbolic life of human beings.

Incest and the Origin of the Family

Not only are there certain foods that you cannot eat, even though they are edible, but there are also certain people that you cannot marry or have sex with, even though they may be really hot and may love you. Let's start with your mother. Once again, the New Yorker who enjoins you to "Eat me, motherfucker!" is not intending to pay you a compliment. Invoking the incest taboo is a powerful insult pretty much everywhere.

The people who are covered by the taboo may vary somewhat from place to place. As noted above, your first cousin may be either a preferred partner or a taboo partner. Your first cousin may even be both – your mother's brother's offspring and your mother's sister's offspring may be considered to be different relations, one a fine mate and the other incestuous. Non-blood relations may be covered by the same taboos as blood relations, such as your in-laws. The Bible's incest prohibitions specifically cover a man's stepmother, aunt (i.e., uncle's wife), and daughter-in-law, even though they aren't blood relations.¹³

The origin of these taboos is lost in the dim past. One popular theory has it that the incest taboo is the result of an instinctual program to have a “yecch” reaction to the prospect of intercourse with someone you grew up with.¹⁴ The data invoked here are the low libidos of “child marriages” in China, and the reluctance of Israelis who grow up together on a kibbutz to marry one another. On the other hand, if we are naturally disinclined to mate with those we grow up with, why do we need a cultural taboo to reinforce it? We need cultural rules to stop us from doing things we want to do, not to stop us from doing things we already don’t want to do.¹⁵ Further, if the innate disposition is not really strong enough to prevent it from happening - since (1) incest does happen, even normatively;¹⁶ and (2) we apparently need the cultural proscriptions - then what does such an imagined predisposition really explain?

Since the incest taboo is a set of rules (or many sets of rules, with some significant overlaps), we need to account for it principally as such. Where might these rules come from? Sigmund Freud famously focused on the relationship between mother and son as the centerpiece of his explanation: the son desires his mother sexually - the “Oedipus complex” - and so he must be prohibited from consummating that desire. The evidence for that is psychoanalytic, not empirical, however, so it finds few adherents these days.

Primatology, on the other hand, suggests that we look at a different dyad: the relationship between brother and sister. To see why, we need to begin to examine how a human life is different from an ape life. There are two relevant variables to consider: first, the transfer of sexually mature primates out of their natal group; and second, the delayed maturation, especially social maturation, of human beings.

Nonhuman primates employ a variety of behavioral strategies to minimize inbreeding. By the time a boy baboon is big enough to be socially threatening to the members of his troop, he is booted out, and has to make his way into another troop, where he will live out his adult life. Girl baboons get to stay. It’s the opposite for chimpanzees; where females transfer, and males are philopatric, that is, they get to stay with the other chimps they grew up with. Some primates follow the chimp way, others follow the baboon way; and still others combine them. What primates generally don’t do is go through puberty with opposite-sex siblings around.¹⁷

Humans are characterized by slow growth, since so much of our survival depends on learning and socialization. It takes us a couple of years before we can begin to move around properly, and even longer before we can communicate properly; we have far longer periods of immaturity, front-loading the investment in each child against the expectation that it will survive and breed successfully. Thus, where a chimpanzee gets its first adult teeth around age 3, a human’s first adult tooth does not erupt until around age 5. And where a chimp gets its wisdom teeth around age 11, a human may have to wait twice as long. Indeed to study human growth, the periods that we divide ape lives into – infants, juveniles, and adults – are simply inadequate to describe the breadth of human development. Human lives need extra divisions to accommodate their longevity and complexity, so we introduce “childhood” between infants and juveniles, and “adolescence” between juveniles and adults.¹⁸

This slow growth places demands on a human mother that a chimpanzee mother is spared. Let us imagine, for the sake of heuristics, that a chimpanzee mother and a human mother of, say, 100,000 years ago have offspring at approximately equal intervals - say, four years apart. Of course, the human mother has a more difficult time giving birth, and is substantially incapacitated for some time around parturition. Both newborns have 4-year-old siblings, for whom mother has to care, although the ape 4-year-old is considerably more precocious than the human. Both also have eight-year-old siblings, but here the difference manifests itself more

prominently. The 8-year-old chimp is sexually mature and all but independent of its mother, and is being encouraged to leave mother and become socialized into another group (if it is a female). The 8-year-old human is starting fourth grade, still desperately needing mommy. And the 12-year-old chimp has its wisdom teeth, and is a fully-fledged adult; while its human counterpart hasn't even started high school yet.

This all adds up to chimp mommy having a much easier go of it than human mommy. The act of giving birth is easier for the chimpanzee, and she generally only has to worry about caring for two offspring at any given time. Human mommy needs help, and lots of it - and as we will see shortly, it comes from new social relationships. For the time being, however, we have mom taking care of herself, a newborn, a 4-year-old, an 8-year-old, and a 12-year-old. There might even be a 16-year-old still hanging around. Obviously she's not doing it alone, and the older kids are helping out with the younger kids, like good humans.

Unlike the chimps, however, who separate at puberty, the human group has teenagers living and associating together as siblings, or at least half-sibs. *And if you have opposite-sex teenagers living together, you had better regulate their sexual conduct.*

And that is arguably the basis of the incest taboo: regulating the sexual behavior of opposite-sex siblings in the same family group, a situation that would come to exist far more commonly in humans than in chimpanzees.

And why is that important? Two reasons: First, it represents the origin of morality, of the most basic of human social thought process; there are things you can do and things you can't do, and this is something you can't do. And second, this is also the beginning of the biocultural processes of human evolution, the invisible aspects of human evolution, which are lost when we reduce human evolution to simply its biological processes.

The Invisible Aspects of Human Evolution

By 100,000 years ago, human beings are physically indistinguishable from their modern descendants. With foreheads and chins, their heads are our heads; their bodies and brains are our bodies and brains. They are slightly, but noticeably, different from those of their European contemporaries, the Neanderthals - who lacked foreheads and chins, but otherwise looked very much like ourselves, if we imagine our head without a forehead or chin, and imagine our body as that of a middle linebacker.

Archaeologists can study the material technologies of humans and Neanderthals 100,000 years ago, and find similarities and differences that can speculatively be related to differences in their cognitive function, inferred on account of the elongated heads and brains they had. Of greater interest, however, is the relationship between the humans of then and the humans of now, because the humans of then were cranially the same as us, but behaviorally very different. All their worked, preserved tools were still made of stone - no bone or antler, much less metal. Even something as fundamentally human as drawing - carving and painting - lies tens of thousands of years in the future.

So these were humans who were physically, cranially, cerebrally like us, yet behaviorally very different. Some scholars posit an invisible mutation, a genetic difference that we can't detect, but whose imagined effects render us behaviorally "modern" and distinct from them.¹⁹ But that would fly in the face of what we know of modern human behavior - that all people are capable of pretty much of the full range of human activities and mentalities, and their only major

differences are due to cultural history, not biology. More consistent with that knowledge is the interpretation that the humans of 100,000 years ago had not yet discovered art, sculpture, and technological diversity - just as they had not yet discovered corn, metals, vacuum cleaners and cable television. There is consequently nothing anomalous or mysterious about it; they were just on the low end of The Great Learning Curve of human behavior.²⁰

These humans of 100,000 years ago were behaviorally far more similar to Neandertals than to us. Prior to this time, our ancestors were becoming increasingly reliant upon transforming raw materials into tools for their survival, but their stone tools tell us precious little about them. These early people mark the transition between the biological evolution that principally characterized hominid evolution for the previous few million years, and the cultural evolution that principally characterizes it now. This was the age of biocultural evolution, when changes in human social behavior entered a complex feedback loop with the natural variables in human life. Those natural variables are the life history traits - rooted in the biological slowdown of development in the human - that coevolved with the cultural and social life of the species.

Unfortunately, however, those aspects of the social and cultural life of early humans are far more difficult to access in the fossil record, and therefore to discuss scientifically, than the features of the body, which form the bedrock of our scientific narratives of human evolution. Consequently, we have a strong tendency to ignore the biocultural evolution of humans, and reduce it to merely biological evolution.

Consider, as a case in point, the incest taboo, which provoked this discussion. Most contemporary scientific treatments of the phenomenon treat it as a form of inbreeding avoidance, rather than as a form of morality. Why? Because inbreeding is something that can be measured and compared against other species, while morality is not. And yet, that treatment fails to explain why a first cousin is so often globally a preferred marriage partner. As the French anthropologist Claude Lévi-Strauss once put it, this is precisely where “the transition from nature to culture is accomplished.”²¹ Similarly, we discuss the evolution of pair-bonding, rather than of marriage; although pair-bonding does not yield the set of reciprocal obligations and relationships among families that marriage does.

This is what I mean by saying that human evolution is increasingly biocultural evolution. It is not to deny that a taboo against mating with close relatives has a salutary effect upon the coefficient of inbreeding that geneticists can measure, nor to deny that humans are pair-bonded to a much greater extent than chimpanzees are. But to fail to address the cultural elements and consequences is to miss what is particularly human about human evolution.²²

The Biocultural Evolution of Human Social Relations

Taboos are the most basic elements of the moral life, and morality is the most basic element of human social life. Imposing imaginary divisions upon the chaos of the universe is one of the things that the human mind is very good at. So far we have called attention to the well-known separations between the edible things that you can and can't eat, and the sexy people you can and can't have sex with. Normal people respect those boundaries, which identifies them as at least minimally acceptable community members. To fail to respect those boundaries is to identify yourself as someone who would do pretty much anything, that is to say, as being morally dubious, an unpredictable and undesirable kinsman, neighbor, or citizen.

Here, however, we reach an impasse in the study of human evolution. We have entered the realm of collective thought, of relationships among humans, rather than of the properties of humans. These will be crucial to the evolutionary emergence of the human condition, but they will not be physically evident. And since they are not physically evident, they are not part of database on human evolution.

We have already noted the emergence of the bond between opposite-sex siblings, which is special to humans, for it creates a new kind of social relationship: a lifelong intimate interaction between opposite-sex individuals that is not sexual. This will be symbolically extendable in three ways: first, to other family members, and banning sexual relations with them, once there is a concept of the family; second, to other opposite-sex community or clan members, accompanying a broader conception of kinship than just the family, and forming the basis of exogamous marriage rules;²³ and third, to other generations, where the offspring of those same taboo opposite-sex siblings will be cross-cousins, and may be symbolically special, but in the directly opposite way, as normative spouses. We can take these up in turn.

The family constitutes an invention as significant as cooking and art in human evolution, and is generally underrepresented in our scientific narratives, because it is composed of relationships, rather than of organic properties that leave a material record. To see where it came from, we have to return to the life history of early humans, and the difficult childbirth, and all of those immature offspring. Human motherhood is both continuous with, and discontinuous from, primate motherhood generally. Not only is giving birth necessarily social in humans, because it generally can't be done alone, but that very social aspect means that a human mother is obliged to be more tolerant of others being around her newborn than an ape mother is. Whether it is the newborn's aunts, older siblings, father, grandparents - or non-relatives, like an obstetrician, midwife, doula, wetnurse, or babysitter - there are far more people in contact with a young human than an ape mother would ever tolerate around her child. Anthropologist Sarah Hrdy has argued that this tolerance of "others" by early human mothers translated outward to the general prosociality (i.e., niceness) of humans, compared to apes.²⁴

Two "others" are particularly significant in human evolution, not just for their impact on the material well-being of mother and offspring, but for their social and symbolic aspects as well. The first is the husband (of a woman) or father (of a child), two relationships, neither of which exists in the apes, embodied in a single person. An ape female might have a pair-bonded male, but a husband is the product of the cultural act of marriage; and an ape child certainly has a genitor, and might even have an adult male around who will tolerate it, but a father is the result of culturally-recognized obligations.²⁵

Husband/father is thus a biocultural status, which can be reduced neither to the biological resident or pair-bonded male, nor to the biological sperm donor or caregiver. At issue is the origin of marriage, which is a set of reciprocal obligations between two families. Unlike pair-bonding, marriage hardly ever involves just two people, and creates the new social relationships of in-laws, which don't exist in the apes. Marriage is the basis of kinship; it legitimizes sexual relations and gives a child a place in the social order.²⁶ In addition to the insults evoked by cannibalism and incest, calling someone a bastard is also widely effective cross-culturally, for it suggests that they have no real place in kin-based society. Marriage serves other functions as well - it may establish a new residential unit, economic unit, and political unit, and formalize emotional ties, as well as legalizing reproduction. With so many functions, no wonder it takes so many diverse forms across human cultures.²⁷ It also makes it very difficult to know just what its original function was. The other "other" is his mother-in-law, of whom more later.

Human Evolution and Mate Choice

A second feature of human society is exogamy, the prescriptive rule to marry someone unrelated to you. This is different from the incest taboo, which is the proscriptive rule against sex with a family member. Exogamy involves recognizing kinship beyond the family, and classifying people as eligible marriage partners or not, largely independently of any meaningful genetic relationships. A seventh cousin once removed on your mother's side might be an eligible spouse, while the equivalent relative on your father's side might not be. This is obviously very highly cultural, for it involves marriage, and the imposition of biologically irrelevant distinctions upon groups of people.

In the urban, modern world, the cultural marriage patterns tend in the opposite direction. We tend to marry people whom we perceive to be compatible, which often means people whom we find to be similar to us in culturally-defined ways: similar social class, similar political views, similar religious views, similar educational status, common ethnic background. Why do people do this? Two main reasons: the pragmatic desire for a tranquil domestic life, and parental approval.

This, it may be noted, has very little to do with what some Darwin-intoxicated psychologists model as the evolution of "mate choice" - which assumes that potential spouses are independent autonomous actors, and that their only criteria in a partner are aspects of physical beauty. Thus, based on questionnaire data, men have "evolved" to be attracted to women with a waist-to-hip ratio of .67 (that is, the latter two measurements of 36-24-36), and to women with symmetrical, but average, faces. Other studies purport to show that women "evolved" to be attracted to sugar daddies. This effect is strongly correlated with gender inequality, however; and is most readily visible in cultures where women are systematically denied access to resources, and consequently are obliged to marry them. Other claims include the choice of mates on the basis of detecting who might be a good parent to future offspring, a sensitive sexual partner, or a good kisser.²⁸ Our ancestors were apparently torn in many different directions.

Actually, however, evolution probably has rather little to do with it. The argument implicating evolution involves the assumption that we compete for mates, usually males for females. Such competition is often expressed in patterns of sexual dimorphism among primates. Baboons, for example, are highly competitive for mates, and the males are considerably larger than the females, due to what Darwin called sexual selection. On this basis, some biologists have argued that we are naturally somewhat polygynous, like those baboons. On the other hand, baboons also have highly dimorphic canine teeth, while the monogamous gibbons do not. On that basis, some biologists have argued that we are naturally somewhat monogamous. Not only that, but humans are sexually dimorphic in ways that have no homolog in our close relatives, most notably, body composition and facial and body hair. This in turn suggests evolutionary processes at work that we cannot use the primates to model, for the patterns are unique to our own lineage.²⁹

Those unique evolutionary processes are of course the biocultural evolutionary processes by which we became human. Clearly, when the data are taken in full they present a highly ambiguous case for extracting any natural human socio-sexual system by comparison to other species of primates. For a species in which marriage is the norm and families are involved in choosing mates, the traditional modes of competition that we see in primates will be strongly

mitigated. One significant and obvious effect of marriage is that it tends to equilibrate the reproductive output of men relative to women, and of men relative to one another. Sure, there is the occasional sultan with 600 children, but the conditions of extreme power and wealth inequalities that make such a situation possible are very rare and ephemeral in human history. The various social rules about who is excluded and included from being an appropriate mate have always made it far narrower than a free market; and a good mate is not only fair of face and form, but also from a good family. But what are the criteria of a good family? They are invariably cultural: perhaps wealthy, perhaps honorable, perhaps familiar, or well connected, or wise, or skilled. With such diverse non-biological criteria, it seems very unlikely to imagine that biological evolution has been busily at work in shaping human mate choice.

Consequently, even evolutionary psychologists have belatedly come around to the recognition that their conclusions are based on a ridiculously narrow sample of the human species, predominantly white, educated, industrialized, rich, and democratic, or WEIRD - and the relationship of this body of research to human evolution is highly dubious.³⁰

And yet, once you have prohibited sexual relations with certain members of the opposite sex on the basis of familial relationship or a more obscure cultural rule, you have created a highly non-primate-like world of male-female social relations. Human sexual acts are more tactile, more intimate, erotic, and simply go on longer than their ape homologs.³¹ But we have also reciprocally created a social universe in which men and women can associate with one another for reasons other than mating. College students sometimes call this “Platonic friendship,” but of course it is far broader than that, and gets to the eventual possibility of having an opposite-sex doctor, or minister, or mentor, or confidant. Thus, relationships between men and women are divergent from relationships between male and female apes both sexually and non-sexually; but the very emergence of a concept of non-sexual relationships between opposite-sex adults is peculiarly human.

Multi-generationalism

The third feature of human society that emerges from the invention of the family is the recognition of multi-generationalism, and its attendant implications. Where opposite-sex siblings are taboo sexual or marriage partners, they nevertheless often remain in intimate contact for life. Their immediate descendants, first cousins, will come to lie right on the symbolic boundary of the family, sometimes being taboo partners, and sometimes being preferred partners. This is irrespective of their biological relationship, that is, with a 12.5% chance of having inherited the identical allele from their common grandparent. When Charles Darwin married Emma Wedgwood, his mother Susannah and her father Josiah were siblings - and although that kind of genetic calculation had not yet been invented, Darwin knew that his family was inbred, and was very bothered by that fact. He even speculated that inbreeding, whose effects in other species he wrote about, might be the cause of the susceptibility to disease that seemed to haunt his family.³²

Generational relationships in the opposite direction are rather more interesting, though. Hominid mother needs help. Her children are hard to bear, very immature, and having a special man around is certainly a good way of solving the problems raised by the emergent aspects of human life history. But a few tens of thousands of years ago, something else happens to the

human life history, quite possibly a consequence of the success that these forehead-and-chin people came to enjoy as they spoke, organized themselves, and made things.

They began to get old.³³ And unlike female chimpanzees, who essentially breed until they die, female humans reached an age where they stopped breeding, yet continued to live. The evolution of menopause, so to speak, would provide human mothers with an additional, or alternative, source of material assistance. Thus, grandmotherhood would be a new social relationship, in which a post-reproductive female could invest in the propagation of her genes in her grandchild, one generation removed from where chimpanzee females place all of their investment.³⁴

This, however, sets up a new and powerful conflicting relationship, between husband and mother-in-law. The husband is simply another role for the father, and the mother-in-law is simply another role for the grandmother. With wife-daughter bound to both her mother (from her old family) and to her husband (from her new family), an obvious tension is established in their relationships to the same person. The consequent relationship between husband and mother-in-law is one of the most famously taboo social interactions across the globe, as much the stuff of vaudeville routines and situation comedies as it is a part of traditional native African, Australian and American social life. Over a century ago, the early anthropologist James Frazer observed that “the awe and dread with which the untutored savage contemplates his mother-in-law are amongst the most familiar facts of anthropology.” The taboo is not one of sexuality, but of simple face-to-face interaction, born of competing for the same person’s affections. Even the face-to-face interactions are uniquely human, as our prominent eye-whites betray our gaze and focus, making human face-to-face interactions just that much more intimate than ape face-to-face interactions.

Mother-in-law also has another crucial social relationship in her other role as grandmother, beyond the simple provisioning and other material assistance to her daughter and to her daughter’s children. Chimpanzees and other primates, after all, have grandmothers - but there is nothing discernibly special about that relationship. For humans, though, grandmother-grandchild is a special relationship, often a contrast to the relationship between parent and child. The specialness of that grandparental relationship, and its contrast to the parental relationship, also highlights an important cognitive element in the evolution of kinship bonds.

If we take the characters of the television show “The Simpsons” as our examples, we have three relationships: Lisa to her mother Marge, Marge to her mother Jacqueline, and Lisa to her grandmother Jacqueline. Lisa must learn that her relationship to Marge is equivalent to Marge’s relationship to Jacqueline, but different from Lisa’s relationship to Jacqueline. That is actually some pretty fancy brainwork. Indeed, it is essentially the gold standard of human cognition - a theory of mind, or the ability to put yourself in someone else’s place. Lisa must be able to put herself in Marge’s place in order to understand how her mother’s relationship to her grandmother differs from her own relationship to her grandmother. That is to say, she has to learn that “my mother is someone else’s daughter.”

In addition to the nascent “theory of mind” implied by the recognition of the grandparental generation, there are other important implications as well. After all, if mom is someone’s daughter, then grandma must be someone’s daughter too. Ancestry itself thus emerges from grandmotherhood.

But why stop at great-grandma? After all, she had a mother, who had a mother, who had a mother ... back into the dim past - we can now have mythic ancestors, which chimpanzees don’t have. We can be descended from the eagle or bear, or from the gods and heroes.

Moreover, great-grandma is sadly no longer with us, which in turn raises another question that chimpanzees don't grapple with, namely, Where is she? That, in turn, raises the question of death. Chimpanzees appreciate that another chimpanzee's long-term lack of responsiveness is irreversible; once Boo-Boo has ceased to move, he is not going to start moving again. They certainly understand "here" and "not-here," and they understand "beaten into a limp, bloody, motionless pulp," because they do that occasionally. Sometimes, however, they don't even get that message too quickly, and will carry around a dead youngster until its corpse begins to rot.³⁵

Humans, on the other hand, have a thing about death - a cultural thing. It sometimes involves a desire never to die, or visitations and communications from those who have died, or the special qualities of people who have died, or how to interact with their remains now that they are dead. Our ancestors were burying their dead by perhaps 100,000 years ago, and some tens of thousands of years later, were beginning to bury them with material objects - things they liked, things they ought to have with them, things that are just pretty.

The point is that these are all issues that probably emerged more or less automatically in the minds of cogitating primates engaging with grandmothers, fathers, and siblings.

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- ¹ Westermarck E (1906) *The Origin and Development of the Moral Ideas*. Macmillan, London. Gayon, J. (2006). Are There Metaphysical Implications of Darwinian Evolutionary Biology? In: *Darwinism and Philosophy*, ed. by Vittorio Hösle and Christian Illies. Notre Dame, IN: University of Notre Dame Press, pp. 181-195.
- ² The truth of this statement may be more literary than literal, given the epistemological problem associated with not being able to know what another species is actually thinking. The issue does generate a lot of heat. Some biologically sophisticated theologians have begun to grapple with the primate phylogenetic context of moral questions. Celia Deane-Drummond seeks to identify a middle ground of “intermorality” between those who insist that apes, say, are fully moral actors, like people, and those who insist that humans are literally completely different. C. Deane-Drummond (2014) *The Wisdom of the Liminal: Human Nature, Evolution, and Other Animals*. Grand Rapids, MI: Eerdmans. Likewise, J. Wentzel van Huyssteen (2006) explores the meaning of human existence in a post-Darwinian universe in *Alone in the World? Human Uniqueness in Science and Theology*. Grand Rapids, MI: Eerdmans.
- ³ Although the curse has also traditionally been taken to include painful parturition, which is certainly a part of the human condition, the curse on Eve is more likely about making her responsible for procreation itself (C. Meyers, *Rediscovering Eve: Ancient Israelite Women in Context*. New York: Oxford University Press, 2013; J. Baden and C. R. Moss, *Reconceiving Infertility*, Princeton, NJ: Princeton University Press, 2014).
- ⁴ Genesis 2 is about “the Lord God” making people and Genesis 3 is about “God” introducing rule-governed behavior into human life. Another popular way of understanding the story is to follow St. Augustine, and introduce Satan and Original Sin into the story, but that is not a literal reading, and is thus not germane to the discussion of what the story actually says.
- ⁵ This is of course not the origin of the Jewish prohibition on ham, which comes in Leviticus 11:7. (The devil made me say that.)
- ⁶ The Talmud suggests that Ham may have sodomized or even castrated Noah (Babylonian Talmud Sanhedrin 70a). Simply looking at another person’s genitalia may have been nearly tantamount to raping them in the ancient Near East, and raping your father visually would be a sign of considerable disrespect to your parent. The text is so weird that Genesis 9:24 specifies that the crime was committed by the youngest son, Ham, whose son is cursed on his account, but Genesis 6:10 and 7:13 imply that Japheth was the youngest. Whatever the “original” story may have said, those Bronze Age shepherds clearly were really into patriarchy, and hated the Canaanites. Goldenberg, D. (2005) What did Ham do to Noah? In: “*The Words of a Wise Man’s Mouth are Gracious*” (QOH 10,12): *Festschrift for Günter Stemberger on the Occasion of His 65th Birthday*, ed. by M. Perani. Berlin: Walter de Gruyter, pp. 257-265. Driver, S. R. (1916) *The Book of Genesis*, 10th ed. London: Methuen.
- ⁷ Another rival, the Edomites, were ostensibly descended from Esau, who voluntarily surrendered his claim to the land of his brother Israel one day because he was really really hungry.
- ⁸ Kuper A (2002) Incest, cousin marriage, and the origin of the human sciences in nineteenth-century England. *Present and Past* 174: 158-183. Bittles AH, Black ML (2010) Consanguineous Marriage and Human Evolution. *Annual Review of Anthropology* 39: 193-207.
- ⁹ According to the Bible (Judges 12) 42,000 Ephraimites wished they could distinguish between those sounds, as a simple matter of life and death.
- ¹⁰ <http://celebritybabies.people.com/2012/03/23/mad-men-january-jones-placenta-capsules-not-witch-crafty/>
- ¹¹ The most famous example is brain consumption in New Guinea, which was found to be facilitating the transmission of a disease called kuru, and led to the discovery of prions. Lindenbaum S (2001) Kuru, Prions, And Human Affairs: Thinking About Epidemics. *Annual Review of Anthropology* 30: 363-385. Anderson W (2008) *The Collectors of Lost Souls: Turning Kuru Scientists into Whitemen*. Johns Hopkins University Press, Baltimore, MD.
- ¹² Iliad, Book XXII.
- ¹³ Leviticus 20:11-21.
- ¹⁴ Westermarck, Arens W (1986) *The Original Sin: Incest and Its Meaning*. Oxford University Press New York. Spain DH (1987) The Westermarck-Freud incest-theory debate: an evaluation and reformulation. *Current Anthropology* 28: 623-645.

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