

Three Processes of Evolution in Human Households

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Prologue

The household is a basic structure in human life. It is a small group, averaging about five persons, that shares in residence, sleeping, preparing and eating food, domestic tasks, and the nurturing of children. The household is usually centered on a pair of adults and their co-resident children, though it can include different numbers, ages, genders, and unrelated people. The household has existed in similar forms all over the world for a long time. Not all households are families, and families extend much further than households. Households can also be included in larger groups such as bands, towns, and ethnic groups.

This is a look at households in history, as seen through three processes of evolutionary change. Households have changed along with the other changes in the history of *Homo sapiens*. Rather than simply announce the changes that have taken place in households, the approach here draws on history and methodology to seek out explanations of the processes of change. The underlying method emphasized here is the theory of evolution.

Charles Darwin, in his 1859 book, *The Origin of Species by Means of Natural Selection*, put forth a framework that explains the broad processes of biological change. His overall statement was a process of “natural selection”; only gradually did the term “biological evolution” come to summarize his theory. Darwin saw that natural selection itself depended on dynamics that he labeled as variation, reproduction, and selection. That is, **variation** in an organism produced change in its *phenotype* (its observable characteristics and behavior); **reproduction** of the organism passed its changes to the next generation, and **selection** among the various changes in organisms meant that those best able to produce offspring were able to pass their changes on to later generations.

In the 160 years since Darwin, much has been learned about evolution. We have learned about the hominin species that were the ancestors of humans over the past two million years, and that the process of natural selection resulted in the expansion of their physical capacities, brain size, and brain capacity. In recent decades, researchers in various disciplines have also learned about new processes of evolution, based on natural selection but with new patterns of change. These processes amount to **cultural evolution**—resulting from individual and social learning—and **social evolution**, which comes from the creation of self-conscious groups that created spoken language.

If you have not yet viewed the [animated simulation](#) that accompanies this text, you may wish to do so after reading the essay. The animation provides an introduction to the processes and methods of biological, cultural, and social evolution, showing how they made changes in households and in the social roles within households.

Essay

How have processes of evolution changed households?

Households emerged as residential units in the early days of *Homo sapiens*, in East Africa, probably over 400,000 years ago. Households were somewhat different from the residences of previous hominin species, as they gave more attention to “pairbonded” male-female household leaders. The process of biological evolution had affected humans and all other animals and plants, but for humans the brains and the levels of social cooperation had developed to an unusual degree. As of about 300,000 years ago, humans had developed sufficiently in their brains, and a new process of cultural evolution began to take form. Knowledge was exchanged and preserved from human to human, as well as through genetic change. Still later, about 70,000 years ago, human cultural capacities had developed to the point where it became possible to create self-conscious groups, especially through the creation

and sharing of spoken language. The similarities and differences of these three evolutionary processes—and their influence on households and household behavior—are described in the following paragraphs.

Biological evolution, beginning many millions of years ago

Biological evolution, through a process known as “natural selection,” brought gradual change to plants and animals. New species keep appearing as environmental changes have occurred. One evolutionary step was the appearance of *Homo sapiens*—its individuals, households, and communities—as early as 500,000 years ago. Darwin’s detailed theory of natural selection balanced three dimensions of change: *variation* of biological characteristics, *reproduction* of each characteristic from generation to generation, and *selection* in which some innovations survive while others do not. More specifically:

Variation. The *phenotype* means the observable characteristics of individual humans, groups of humans, and the species as a whole. Variation in the phenotype takes place through mutation (usually random changes) of genetic constituents within human cells.

Reproduction. The genome, as it replicates strands of DNA within cells, also preserves each mutation. The sequence of reproduction runs from DNA to RNA to proteins and to the creation and modification of organs and practices, ultimately including characteristics of households and communities.

Selection. Each genetic innovation that is valuable to the organism is preserved at the molecular level of the genome but also at other levels. For various reasons at the molecular level, the level of bodily organs, and because of environmental changes, some innovations become successful while others simply fail to be selected. The *biological fitness* of the revised organism is reflected in the rate of its reproduction of offspring in later generations.

Results of biological evolution. Through these processes in African environments, networks of *Homo sapiens* strengthened households and communities, nurturing children who later took up community tasks. Further innovations from biological evolution included new tools, hunting, and mastery of fire. In an internal mental change known as Merge, two concepts could be combined and then linked to a third. Founding populations with these characteristics spread throughout Africa.

Cultural evolution, from 300,000 years ago

“Cultural evolution” is a term developed in the 1980s by analysts of the newly discovered biological processes of *epigenetics* and *kin-selection*. These processes permitted “social learning,” the preservation of knowledge exchanged among human brains. Such cultural evolution arose gradually but especially from about 300,000 years ago. The following analysis of variation, reproduction, and selection shows the parallels and differences of cultural evolution and biological evolution.

Variation. The *phenotype*, for cultural evolution, includes observable characteristics arising not only from the genome but also from the characteristics of individual learning behavior and its influence on the community. Social learning posits individual learning through observations of each other or instruction by others—as in nurture of children or techniques for creating or using tools. At the genomic level, random mutations may yield biological changes that provide support for the socially learned activities, or they may undermine the new techniques.

Reproduction. Newly learned activities are reproduced in individual brains and at genomic levels. Innovations in the brain are stored, retrieved, and passed on to others before the end of a generation. In the genome, phenotypical cooperation builds pressure for genetic mutations that reinforce the higher level of learning in individuals.

Selection. At the brain level of the organism, selection of innovative practices requires consistent support by individuals, relearning the same lessons, and developing abilities to store and retrieve information. The process of dual inheritance requires that the individual-level and genome-level dynamics equilibrate with each other, so that collective behavior is gradually reinforced. The analysis also focuses on evolution of punishment to reaffirm

cooperation. The *cultural fitness* of the revised organism is reflected in the rate of its reproduction of offspring in later generations—just as it is for biological fitness.

Results of cultural evolution. The expansion of social learning brought higher levels of cooperation and competition among humans. Households deepened child care and expanded household implements, jewelry, and decorative coloring with ochre. Communities drew on labor from households to create new tools of the Middle Stone Age, including stone tips linked to wooden spears, and expanded the use of fire. Communication also expanded with dancing, gestures, and networking, but not yet speech.

Social evolution, from 70,000 years ago

Social evolution, the formation of conscious and goal-oriented groups, arose rather rapidly about 70,000 years ago. The two principal changes were in the rise of spoken language and in the organized group behavior of other social institutions. In each case, individuals agreed to form and maintain collaborative groups—and made group-level decisions that relied on huge amounts of individual learning.

Variation. For social evolution, *phenotype* expands observable human characteristics to include collaborative social institutions. The innovative variation is that individuals consciously join with each other to achieve a common task: this is the *we-mode of collective intentionality*. For language, this process required that individuals begin sharing words and sentences with agreed-upon syntax, using their internal Merge logic to construct understandable spoken sentences. Language was a social institution created among a group of about 15 juveniles as they played, combining learning skills, innovation, memorization, and communication.

Reproduction. Institutional evolution takes place through the reproduction of social institutions, beginning with syntactic language via reproduction of vocabulary and the norms of syntax. This resulting archive of language was distributed among the brains of speakers: shared vocabulary and syntax were passed to the next generation by discussion at all levels. For other institutions, the patterns of leadership were passed on to members of the next generation.

Selection. Social selection takes place at the community level rather than the individual organism level. Which social institutions, created by common effort, were to be propagated into the next generation? What practices were to be maintained within institutions? Institutions that were seen as unsatisfactory to the community could be removed or at least revised substantially—especially at the time of generational change and during the selection of new leadership. Social or *institutional fitness* was assessed in terms of social welfare: How did an institution contribute to the capabilities of community members (over generations)?

Results for social evolution. New activities and goals of speaking communities included teaching language widely, marriages among households identified by name, creative representation in art and religion, and finely crafted Later Stone Age tools. Households took on the instruction of infants in language and speaking. Communities of 150, each with a language, migrated to settle the earth. With time, those communities joined to create larger-scale societies, requiring still more labor from households. With the rise of agriculture, households and communities divided up the productive tasks. And in order to expand the labor force, children came to be born with closer spacing.

Households in recent times

In the last few thousand years, societies developed new institutions for ceramics, metallurgy, religion, military, states, writing, and schools. Towns arose and some languages became widely spoken. Monasteries and military barracks replaced households for those who lived in them. Slavery changed households, in that females headed slave households, but free males owned their children. Most recently, COVID-era working at home has transformed many households. Still, households sustain themselves.

Today, the study of small units of ordinary humans, beginning with households, has grown in importance. While world history and contemporary globalization are important, the recent attention to large-scale processes has led to neglect of the local and bottom-up social processes and changes that are necessary for the reproduction of society. One may ask, for instance, how mobile phones have changed family and household behavior. Households have grown larger where birth rates are high, and smaller where birth rates are low. Cities have growing numbers of solitary inhabitants and changes in the gender patterns of households. It remains central that households nurture the children who later take on adult roles in household and in society. Household members participate as citizens in a world also composed of government, corporations, other institutions. Nevertheless, schools and corporations put pressure on households to change their activities. Still, the household is a biological structure, developed in early times, which has persisted in remarkably similar form for long time.

Conclusion

Human households and communities have evolved greatly, influenced by three regimes of evolutionary change. The changes have facilitated cooperation in humans but have also brought conflict. Biological evolution, through unconscious genetic change, adjusts human bodies and minds to their surroundings. Cultural evolution, through social learning in individual brains (with support from genetic and developmental change), builds new skills. Social evolution brings about self-conscious, group-level decisions in language and institutions, helping households and communities achieve chosen objectives. Communities became societies, which have expanded in laboring, invention, and change. Households adjusted to such changes, providing the comforts and labors of home and, especially, nurturing children.

For fuller detail on households and their evolution, see Patrick Manning, "Households and Communities: Evolution in Homo sapiens," available at patrickmanningworldhistorian.com.