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Agriculture's Impact on Population Growth and Social Stratification

The transition from food-collecting to food-producing in early humans led directly to larger, denser populations, and therefore also social stratification. There are a few reasons this occurred, including changes in food abundance, settlement patterns, and nutrient density. But overall, agriculture and agricultural technologies of intensification vastly shifted the communities that early man lived in.

This growing population was first supported by a newfound abundance of food. While agriculture required more time than hunting and gathering (hunter-gatherers would work fewer days of the week and have more time to rest) and had higher risks were the crop to fail, it also had larger payoffs. This meant that early humans had much more food than they had ever had before and were therefore stronger and less predisposed to illness and starvation than their predecessors. And where people are comfortable, well-fed, and somewhat secure, children follow. This was the first contributor to the population explosion that humankind experienced.

Further, with growing populations and an intensified interest in agricultural fields rather than hunting and gathering, humans had to settle. They had to set up permanent camp around their fields so that they could remain to tend to them, and so that they could store their excess harvest. After all, there is little point to cultivating food, grains, and technologies if humans and their children are not present to reap the benefits of it. This led to living in villages, often in buildings that shared walls. When human hunted and gathered, they did not build camps so much as dwell in existing spaces like caves and groves. And while hunter-gatherers had community, agriculture and sedentism took community-building to a whole new level because people were spending much more time together. This also contributed to population growth. First, because with greater community, early humans had much more sexual opportunity than before. In smaller, hunter-gatherer tribes, there were probably fewer sexual partners who were not already in one's family tree. And that meant that there was less genetic diversity, and that children were more likely to be born with mutations that made them unfit to survive. With sedentary, agricultural communities, more humans survived, more humans were able to join the community, and the genetic pool was fresher- offspring had a better chance of being born with fewer incestuous mutations and could live longer. Second, sedentism led to an increased birthing period. The birth period, or time between when a woman was ready to have children again, was shorter than when humans hunted and gathered. This was because humans were moving around less, and it was much easier to have children if one does not have to pack and unpack camp every day and follow prey. This, of course, led to even more population growth, which is another reason why the invention of agriculture led to a five-times increase in human population growth, relative to the peregrine lifestyle humans had prior.

One other factor that contributed to human population growth was nutrient density, which is related to agricultural technologies of intensification. The more time humans spent practicing agriculture, the more likely their crop was to be successful, and the more likely that they had more food to eat and less to worry about (at least, in terms of starving.) This meant that they could experiment, consciously or unconsciously, with new ways of growing food. Some new methods of agriculture included the invention of the plow, the discovery and cultivation of superfoods, and terracing. The invention of the plow began to introduce the value of secondary animal products. Suddenly, an ox was more than its meat. It could also provide labor, and calves that would encourage a cow to produce milk. The cultivation of superfoods helped humans grow reliable crops that calorie intensive and unlikely to fail. And terracing was proof that agriculture could occur anywhere- even the on the unforgiving and sparse growing space on mountains. Each of these technologies meant that a square unit of land could yield more calories, which did even more to prevent humans from starving, allowing them to focus on developing new technologies, and producing more children.

The next question is, why did all this population growth also correlate to social stratification? The answer is simple- where there are groups of people, there will always be an "us versus them" mentality. And in larger groups, the divisions between "us" and "them" are only more important. For early humans, the increased population meant that people developed social clout in two primary ways. They either needed to have more resources than their peers or have more children (although, having more children was essentially the same as having more resources.) Having resources meant "owning" more land, more food, more tools, or more animals. This is reasonable. Having more resources meant being able to provide for more of the community, but more realistically, for being able to provide for more children. And children could be mobilized to either work land and create more resources, or to fight against other social groups. In this way, people with more children and more agricultural resources were above people with fewer children and fewer agricultural resources in the social hierarchy. Luckily, it seems that early man realized that fighting was not the solution to every problem. There is evidence that governments were formed, meaning that there was likely an extra tier to the social stratification that existed. While it is likely that people who already owned much land and children were on the government, they were probably also respected for their ability to keep the peace, perhaps even more so than community members who had land and children but were not involved in the government.

There is one last group of the social hierarchy that we have proof of, and that is artisans. Artisans are a kind of culmination of the transition from the food-gathering to food-producing process that has been analyzed here. They were a group of people who are separate from the food producing process but were still able to contribute to the community by developing tools and skills and trading them to the people who did produce food. This is important because it is an early indicator of the current social structures that exist now. Many of us today are utterly divorced from our subsistence processes. We do not grow or kill our own food, we do not purify our own water, and we do not build our own housing. We are instead able to trade softer skills for the resources to acquire these things, which was something that would have been impossible without the development of agriculture, agricultural technologies of intensification, population growth, and social stratification.

A Comparison of Natufian and Epipaleolithic Lifestyles

The lifestyles of the Natufian people portend the sedentism that followed the Epipaleolithic period. A number of archeological pieces show this change, including unique bladelets, new kinds of art, and items that suggest long-distance exchange. For these reasons, the Natufian civilization is an interesting insight into what human lifestyles would become.

The first, and arguably most exciting piece of evidence from the Natufians are tiny bladelets. These blades are very small stone pieces, and a few were found embedded in early versions of sickles. This indicates that even though the Natufians were still hunter-gatherers, they were beginning to harvest or cultivate grasses similarly to the agricultural practice today. The grains they would have harvested would have included wild cereals, some legumes, almonds, and pistachios, which are much more complex to find and gather than standard berries and nuts. This is very different from the early Epipaleolithic inhabitants because they had not discovered agriculture yet and instead spent much of their time gathering and hunting. Somewhat related to these early sickle inventions was the evidence of fermentation. The Natufians apparently made quite a bit of beer, which requires a surplus in agricultural production. This also shows researchers that the Natufians were likely more "well off" than their Epipaleolithic progenitors, as they could experiment with excess food instead of having to consume it for subsistence. Further, the Natufians had mortars and pestles, which are not so different from contemporary ones. This is further evidence that the Natufians were experimenting with new styles of eating which were likely better for them in terms of caloric efficiency. Because their bodies had to expend less energy chewing and digesting rawer foods, their bodies could dedicate more energy towards their brains.

Natufian art also lends quite a bit to modern understandings of the people. While art has been around as long as the human race has been around, Epipaleolithic art mostly centered around paintings of animals. The Natufians, however, seem to be the first to produce artistic and utilitarian objects. For example, some pottery with rich and detailed designs and ostrich-egg vessels with inlaid patterns were found. Further, faces are drawn or carved, and bodies are entangled with each other. Further, the dead are buried with artistic pieces like jewelry and shells. It is difficult to determine exactly what relationship the Natufians had with art because they are no longer around to supplement our understanding, but all the evidence points to art being a necessary and integrated part of their societies and lifestyles. This is further proof that the Natufians lived very differently from their Epipaleolithic counterparts. Not only could they consciously set aside to time to create art, but their brains were also well-rested enough to be creatively active.

Another very exciting change from the Epipaleolithic people to the Natufians is evidence of long-distance trade. Obsidian tools were found in Natufian societies far from their origin sites. Obsidian is volcanic glass, and many pieces of obsidian are very distinctive in terms of their chemical makeup and color. Through these identifiers, it is possible to tell where a piece of obsidian came from. While it is possible that the Natufians were just very far-ranging people who visited quite a few volcanos, the spread of the tools and evidence of settlements near volcanoes suggests instead that the groups of people were trading. Trade means that a few other characteristics of Natufian society are true as well. Once again, it shows that the Natufians experienced some kind of excess that they felt comfortable trading for other things. And it also

shows that Natufians likely had some kind of government or hierarchy that determined the value of items. If not hierarchy, the groups of Natufians were definitely bartering with other groups and agreeing on "prices" or values of items. This indicates collaboration, which is further evidence that the Natufians were somewhat secure. If they were not safe, or starved, and otherwise unduly exposed to the elements, their comfort with interacting with other groups of people would be greatly lowered.

These are just a few of the ways in which the Natufian lifestyle was different from the Epipaleolithic lifestyle that preceded it. While there is very specific evidence of the ways in which the individuals had different cultures and practices, e.g., the Natufian bladelets, sickles, mortars and pestles, fermentation ability, art, jewelry, tools, and interest in trade, there is one overarching difference that sets the Natufians apart from the Epipaleolithic people. That difference is the Natufians' level of ease. All of their practices suggest that the Natufians were far more comfortable than the Epipaleolithics, and it is interesting to see how some of their lifestyle changes are continued in the human race today.