

How and why farming arose and spread

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- Diamond Ch. 6
 - Why would people start farming?
 - farming is actually more work than foraging (as we saw last time)
 - many historically and ethnographically documented foragers knew of food production from trading a lot with agricultural neighbors, but chose not to adopt it
 - Aboriginal Australians
 - Native American Californians
 - Khoi herders traded with Bantu farmers
 - Khoi-san (!Kung) foragers with Bantu agropastoral neighbors
 - When anthropologist Richard Lee asked a !Kung man why they don't farm, the famous reply was "Why should we farm when there are so many mongongo nuts?"
 - there is a vignette in Lee's ethnography when the Kung have convinced him to drive them to a mongongo grove, where they would have gone anyway, but on foot.
 - they sing a song with the refrain "People who work for a living, that's their problem"
 - They know that they can get the food they need with less work by foraging
 - One example of what actually happened (Diamond does not discuss this specifically, but clearly has it in mind)
 - The earliest well-documented transition to a significant dependence on agriculture was in the western part of the Fertile Crescent
 - Prior to about 12,500 BC, this area (the Levant) was occupied by small, mobile bands of foragers
 - The Levant experienced a wetter, warmer period from about 12,500 to 11,500 BC
 - this expanded the area of patchy oak and pistachio woodland and natural stands of wild grains and legumes
 - this allowed some foragers to settle in permanent villages around 12,500 BC
 - These people are called Natufians
 - they were highly specialized foragers
 - intensively harvested wild grains
 - as shown by abundant grinding stones
 - sickles with sickle gloss
 - lots of wild wheat, barley, lentils, vetch (a legume), peas, chickpeas (garbanzo beans)
 - also collected nuts such as almond, pistachio, acorn
 - both the almonds and acorns had to be processed by leaching or roasting to remove toxins
 - also hunted herds of gazelles that migrated through the region seasonally
 - The resources were so rich that they could be semi-sedentary or even fully sedentary
 - as indicated by hamlets of circular houses with stone foundations
 - they stored the cereals and nuts in pits

- storage is a necessary part of this specialization
- since the cereal seeds and nuts are only available seasonally
- so they had to collect large quantities and store them for the rest of the year
- each house had its own storage pits, grinding stones, and so on
- suggesting that each family harvested, stored, and processed its own grain and looked after its own needs
- so economically, these sedentary Natufians were organized similarly to mobile foragers
- around 11,500 BC, the climate began to turn cooler and drier
- the area of rich woodland contracted
- for example, the Natufian site of Tell Abu Hureyra was gradually stranded as the woodlands pulled back some 60 miles away
- this kind of change probably happened at other sites, too
- the plant foods found in hearths and garbage gradually shifted, with the ones that need the most water fading away first
- but wild wheat continued to be stored and consumed in great quantities
- even though it would not naturally have grown nearby anymore
- the Natufians evidently encouraged it to grow nearby, by planting, watering, tending, etc.
- this was not a major change for them
- instead, it was a way of maintaining the way of life that they already had
- they already knew how to harvest, store, and use the grains and were accustomed to doing that
- at about the same time, an apparently domesticated form of rye appeared
- apparently the earliest detectable case of plant evolution due to humans meddling with the plant's reproduction
- later, lentils and other legumes reappeared in the garbage
- the climate was still unfavorable for them to grow wild nearby
- so they were presumably starting to farm these plants, too
- the change was gradual, but by 10,000 BC at Abu Hureyra, cultivated cereals and legumes were a major part of the diet: they were committed to farming
- although wild foods also remained important
- sheep and goats were being domesticated by 8100 BC, but hunted wild gazelle still comprised much more of the meat in the diet
- reliance on domesticated animals came later at Abu Hureyra, around 7300 BC
- there was a fairly rapid drop in bones of hunted gazelles
- replaced by more sheep and goats, which had been domesticated considerably earlier
- maybe they had finally over-hunted the wild gazelles
- Abu Hureyra is just one particularly well-known site
- others probably went through roughly the same process
- with local variations, and not at exactly the same time
- From roughly 8500 BC to 3500 BC, and even later in many places, most people in Southwest Asia lived in farming villages generally like Tell Abu Hureyra

- Most villages ranged from several extended families to a few hundred people; a few probably reached into the 2000s.
- A tremendously stable, successful lifestyle of small-scale, traditional farmers
- Lasted at least 5000 years with only relatively minor changes in most places
- That is, agriculture did *not* lead directly to cities or civilization
- instead, it led to a village farming lifestyle that worked fine for thousands of years, and in some places still does
- Diamond suggests that we look at the shift towards food production in terms of constant decisions about which tasks and products were preferable at a given time: foraging ones, or farming ones
 - for a long time – thousands of years in many cases – people in many regions practiced a mix of foraging and farming
 - gradually producing more and more food, until the farmed food became dominant
 - but in some cases, people shifted fairly quickly to farming when they could simply adopt a whole suite of crops and animals that had already been domesticated somewhere else
 - Diamond sees five major factors in these decisions
 - you can see how these were involved in the case of Abu Hureyra, for example
 - the ways these factors differed in different places would explain why some people shifted towards agriculture earlier or more rapidly than others
 - 1. decline in productivity of wild foods made foraging less attractive, and farming more so by comparison
 - as at Abu Hureyra
 - 2. availability of domesticable wild plants made farming more attractive
 - Diamond suggests that the Fertile Crescent had a particularly attractive, productive, easily domesticated suite of wild food plants
 - so that is why cultivation got started there first
 - 3. the accumulation of techniques and technology for handling food production made shifting to it easier and more attractive
 - as did the specialized, sedentary Natufian foragers at Abu Hureyra
 - who developed ways to harvest large amounts of wild grains and nuts in season, and store them to consume for the rest of the year
 - that foragers already knew how to do this would have made cultivating those same plants much more attractive
 - 4. rising population made farming more attractive relative to foraging, since it produces more food per unit of land
 - again, as we saw last time
 - cause, effect, or both? A positive feedback system
- So, Diamond concludes that farming emerged when it did in the Fertile Crescent because until that time, foraging had looked more attractive than farming
 - wild animals were a plentiful food source
 - wild domesticable plants were not as widespread
 - (prior to the wet period that increased wild grain stands and allowed foragers to become sedentary)

- technology for farming had not been developed by intensive foragers yet
 - again, prior to the development of specialized grain foraging
 - populations were still low
- How does plant domestication take place? Diamond Chapter 7
 - Diamond discusses many aspects of the domestication process
 - Since we are so far behind, I won't review them here
 - but the general gist:
 - domestication is a process in which plants (or animals) evolve due to humans interfering with their reproduction
 - initially by accident
 - foragers “planting” certain seeds and not others in their feces
 - early cultivators using practices that happen to select certain kinds of seeds to be gathered and planted, and other kinds less so
 - for example, harvesting will tend to collect seeds from individual plants that sprout more quickly, since slower-sprouting individuals have not produced seeds yet
 - these seeds get planted and tended, selected, planted again and again... unintentionally producing a faster-sprouting variety of the plant
 - later intentionally, as people pick seeds or animals with desired characteristics to plant or breed
 - some plants have biological features that allow this evolution to be more rapid, others have features that tend to prevent new varieties from evolving
 - and different continents had more or fewer of such good wild precursors of domesticated plants and animals
- Why did some places (Eurasia) adopt agriculture faster than others? Diamond Chapter 8
 - These are essentially biological and evolutionary arguments
 - Again, since we are so far behind, I won't review them here
 - but the general gist:
 - the geography and climate of the Fertile Crescent caused there to be numerous wild plants and animals there that were useful and easily domesticated
 - compared to just a few on other continents
 - this slowed the adoption of agriculture because early food producers would not have had a good suite of plants and animals that provided carbohydrates, protein, fiber, etc.
 - foraging would have looked good by comparison
 - while early food producers in the Fertile Crescent were rewarded with a fairly complete suite of plants and animals that met most of their needs
 - encouraging them to shift sooner and more completely to settled farming
 - once they had, they were in a position to domesticate additional plants and animals that take more effort and are less essential to survival