– Last time, we looked at a foraging subsistence strategy
– This time, we will continue with
  – **Agriculture = farming**
    – Activities to artificially increase plant food yields
      – clearing forest, sowing seeds, weeding, diverting water, fertilizing, etc.
  – **Agriculture = farming**
    – **shifting agriculture = slash and burn = swidden**
      – clear, usually burn off an area
      – plant amid the debris
      – grow one or several crops until productivity declines due to soil exhaustion, pests, entrenched weeds, etc.
      – abandon the field, leave it to regenerate for many years
      – sometimes these almost-synonymous terms are used to indicate different emphases
        – but we will just treat them as all meaning about the same thing
  – **fallow**: the resting period between periods of agricultural use of a plot of land
    – in swidden agriculture, fallow is very long, typically one to several decades
  – **intensification**: putting more labor in per acre of land to get more crop production out per acre
    – plowing, weeding, irrigating, fertilizing, fencing, etc.
    – reducing the fallow period is another way to put more labor into the land during a given span of years; this is intensification, too
      – plus, the shorter the fallow, the more fertilizing, weeding, etc. you have to do to keep the yield from dropping
    – agriculture that uses such methods is often called **intensive agriculture**
      – as in virtually all farming in the US
    – the opposite of “intensive” is **extensive**
      – using more land, but less intensively
      – typically with less labor input
      – typically with longer fallows
      – so swidden agriculture an extensive approach, compared to irrigating fields, which is more intensive
      – note that here, “extensive” agriculture does NOT mean “a lot of agriculture”, or “advanced agriculture”
        – it means agriculture that requires a lot of land, but does not work it very hard
    – intensification is a matter of degree; it falls along a spectrum
      – agriculture may be extensive, slightly intensified, moderately intensive, very intensive…
        depending on the amount of labor input per acre of land
    – which is better?
      – It is a trade-off between
not working very hard, but needing a lot of land (extensive)
  like foragers do
  you can only do this where there are few people on a lot of land
working harder, but needing less land per person (intensive)
farming, and intensifying
each person has to work harder when the population rises and there is limited land

Example of farming: Pospisil extracts about the Kapauku Papuans of Papua New Guinea
  also called Ekari or Ekagi
  Kapauku is the language they speak
  they live in the Indonesian province of Papua, formerly Irian Jaya
  mountainous tropical forest with rivers and lakes
  first contact with European outsiders: 1938
  sweet potato is the staple: 90% of total farmland
  pigs are essential for wealth, marriage, status, political and legal power
  and are fed on sweet potatoes, too
  we will look at the exchange of pigs in this region of the world in a later class (moka)
two types of farmland: steep slopes and valley floor
steep slopes: forested
  shifting agriculture (swidden agriculture)
  clear brush, cut trees, build fence, remove debris, burn it off
  plant sweet potato shoots
  weed
  dig up harvest as needed, use field for one to a few years
  abandon for 8-12 years (long fallow)
valley floor: cleared grassland
  moderately intensive shifting agriculture
  pull up grass, burn, fence, dig drainage ditches, weed
  sweet potatoes, sugar cane, taro, banana, greens, cucumbers, gourds, beans
  crop several times before abandoning to fallow
  very intensive complex cultivation
  dig rectangular beds separated by drainage ditches
  fertilize with plant material and muck from ditches
  crop almost indefinitely without fallowing
  sweet potato, manioc, white potato, greens

the subsistence system affects gender roles
women and men do complementary tasks, working roughly equal hours
mountain slope plots:
  men: cut trees, clear brush (with women), build fences, burn (with women)
  women: take over once the field is prepared: plant, weed, harvest
valley floor plots:
  some crops mostly by women, other crops mostly by men
pig breeding and multiple wives
– men own pigs; wives care for and feed them with family sweet potatoes, are paid when the pigs are sold
– men see wives as an investment, since they must pay her parents to marry
– but men have to work in order to provide them with the complementary tasks to do
– men also hunt in distant forests
– women also fish for crayfish, larvae, etc.
– both also gather insects and plants in wild areas and fallow fields
– subsistence is also tangled up with economics and social relations
– pig-breeding contracts as an alternative to more wives, and having to work more to keep them busy
– Notice again: this shows how culture is integrated
– Pospisil can’t discuss subsistence without also dealing with
– gender roles, “commercial” contracts, etc.

– **Pastoralism**
– depending primarily on herds of domesticated animals
– pastoralists typically move their herds to pasture areas, rather than bringing food to them
– typically, some or all of the pastoralists move with the herds
– thus, pastoralists are not sedentary
– terms for types and degrees of mobility (applicable to all people, not just pastoralists)
  – **sedentary**: having one permanent place of residence, year-round
    – that is, generally not mobile at all
    – pastoralists (and foragers) are rarely sedentary
  – **semi-sedentary**: various partially settled patterns
    – fixed homestead plus trips to seasonal camps
    – several fixed homes, one for each season
    – one settlement, but they move it every few years, or a few times per generation
    – and other arrangements…
  – **nomadic**: having no long-term place of residence
    – always living in temporary camps
  – **transhumant** (practicing transhumance): moving through a regular seasonal round of locations
    – may rotate between fixed settlements
    – or may cycle through the same general areas each year, but not to established settlements in each area
    – many pastoralists, and some foragers, are transhumant
  – these are just analytical constructs, not sharply defined categories
    – they overlap and blend
    – individuals, families, and groups vary and mix these strategies
– some people argue that pastoralists can only exist in a system with farmers
  – in which pastoralists
    – produce meat, milk products, wool, hides, etc.
    – to trade with agriculturalists for farmed crop foods
    – without which the pastoralists could not survive very well
– and the pastoralists take advantage of their mobility
– to buy and sell other goods in long-distance trade
– while the agriculturalists
– produce extra crops with which to purchase the animal products and exotic trade goods brought by the pastoralists
– on the other hand, in many places, farmers can survive fine without separate pastoralists
– Pastoralist societies range from simple to complex
– herds allows for a wider range of wealth than among foragers
– because some will prosper and some will fail
– and because these differences accumulate over years
– and can be inherited from one generation to the next
– trade with farmers also may allow some pastoralists to amass great wealth
– mobile pastoralists have sometimes been very effective warriors, typically plundering settled farmers
– so for various reasons, some pastoralists have developed great social inequality, hierarchies of wealth, complex division of labor, royalty, armies, etc.
– One view: pastoralists use animals to convert patchy, seasonal forage that humans cannot eat into steady supplies of food:
– milk, meat, blood,
– and a surplus of animals and animal products to trade for grains, tea, and sugar
– Example: Fratkin extracts about the Ariaal pastoralists of Kenya
– The reading is fairly clear, so I won’t go over the basic facts in class. Some notes are included below as possible aids to studying.
– two key Ariaal pastoral strategies: species diversity and mobility
  – species diversity
    – allows use of various different environments
    – insures against losses that affect just one species
    – diseases, drought, etc.
    – provides a variety of resources
    – camels: milk and transport
    – goats and sheep: meat and trade
    – cattle: needed for marriage and age-set rituals and market sale for cash
  – mobility
    – move to follow brief periods of good pasture depending on local rains
    – limited mostly by availability of drinking water
    – but semi-sedentary
    – live near water holes and towns
    – but stay 10 km away from them to avoid overgrazing
– different animals have different needs
  – cattle: need water every 2-3 days, do better with wetter pasture
  – camels: go for 10 days without water, graze on dry desert scrub
  – goats and sheep: eat desert scrub, but need water every 2-3 days, thus near mountain springs and wells
− so Ariaal divide their herds
  − domestic herds, kept in lowland desert settlements with permanent water: milk
cattle and male transport camels, and goats and sheep
  − camp herds in greener mountain areas
    − cattle: non-milk cattle (adolescent, male, and non-lactating female) sent to
      mountains for long stays
    − camp herds in desert lowlands
      − camels: non-milk camels (same subset) sent to desert for long stays
  − gendered division of labor
  − dry season camp herds tended by male warriors
    − Spartan, dangerous camps
  − in settlements, camels used to fetch water, tended by girls
  − many more tasks divided by age and gender (see page 91):
    − time allocation study of leisure time
      − married males rested 52% of time
      − women rested only 35% of the time, and even then, were usually doing some task
  − two interesting forms of explanation offered by Fratkin
    − explains Ariaal strategies of
      − keeping a diversity of domestic animal species (cattle, camels, sheep, and goats)
      − dividing herds even of the same species into domestic herds, mountain camp herds,
        and desert camp herds
      − and their patterns of mobility and where they locate their settlements and camps
      − his explanations of these are “adaptive” or “functional”
    − explains the increase in the fraction of animals that they sell
      − occasionally sell animals to buy grains, tea, sugar
      − in 1976, sold 13% of cattle, 16% of small stock, no camels annually
      − in 1996, sold 25% of cattle, 21% of small stock, 6% of camels annually
      − due to quadrupling of price of maize meal
      − due to deregulation required by World Bank Structural Adjustment Loans
    − shows that they obviously must really need this corn meal, a product of farmers
    − explaining this shift into the market economy by referring to the World Bank is an
      example of Middleton’s “culture as system” approach

− **Agropastoralism**
  − depending on a mix of agriculture and pastoralism
    − most typically with one or more fixed settlements
    − plus pastures to which the animals are sent with some group members seasonally
  − Example: Herero and Tswana agropastoralists
    − neighbors of the Ju/'hoansi
    − in Lee’s view, the San had lived their region for a very long time, with no other ethnic
groups present
    − some Tswana visited the Dobe area in the late 1800s
      − from their core region in more temperate lands southeast of Dobe and the Kalahari,
        which covers much of Botswana
the Tswana are the dominant ethnicity in Botswana
- most are agropastoralists who farm maize and raise cattle, or urban dwellers, especially in the capital, Gabarone
- Botswana at the time was a British colony
- these Tswana claimed the “empty” land, and two powerful families gained title to most the Dobe area
- comparable to Europeans taking title of land in the US occupied “only” by Native American foragers
- few Tswana actually live in the Dobe area
- in the 1920s, the first Tswana settlers reached Dobe, establishing cattle camps
  - mostly cattle, some goats, chickens, etc.
  - some agriculture, especially maize (corn)
  - these are marginal, rural outposts for the Tswana
- most of the non-Ju/'hoansi in the region are Herero
  - the Herero were pastoralists who practiced some farming to the west of the Dobe area, having spread into Namibia from Angola
  - their area was colonized by Germany in the late 1800s
  - they rebelled in 1904, setting off a genocidal war
  - some fled into the Kalahari
  - the survivors took refuge in the Tswana region, under their British colonial rulers
  - some ended up around Dobe
  - essentially the same subsistence as the higher-status Tswana:
    - mostly cattle, plus goats and farmed maize
    - plus assorted other minor animals and crops
- This is a common pattern
  - when agriculturalists or pastoralists meet foragers on land they want, the foragers almost always lose.
- Most of the world was once occupied by foragers
  - and is now occupied by farmers (and wage laborers supported by farmers)
    - Tswana and Herero farmers and herders occupy formerly Ju/'hoan land
    - agropastoralists of European descent now occupy North American land that was occupied by indigenous foragers and farmers
- Why?
  - Progress? Improvement?
    - many of the Ju/'hoansi don’t think so… they would rather continue foraging
    - Farming allows for larger populations in a given area
    - with more complex social structure
    - more able to create surplus settlers
    - more able to support specialists to make weapons and tools, etc.
    - better organized to fight, administer, imprison, etc.
      - is that “better”?
      - do poor farmers live better or happier lives than poor foragers?
      - or is farming just more prone to displace foragers than vice versa?
Lee notes the interactions between Ju/'hoansi and Herero
- Ju/'hoansi men often spend a few years working as cowhands for Herero
  - more for access to meat and milk than for pay
  - so they can share with relatives, host them at Herero camps
- interesting intermarriage pattern:
  - Ju/'hoansi women marry Herero men (“marrying up” or “hypergamy” by women),
  - but no Herero woman will ever marry a Ju/'hoansi man (“marrying down”, “hypogamy” by women)
  - this makes Herero men competitors for scarce Ju/'hoansi women
- defused by the “swara” relationship of exaggerated cordiality between Herero (high status) and San (low status) brothers-in-law
  - instead of normal San respect and avoidance of brothers-in-law
  - swara implies equality, a two-way street, even though all know it is not really there
  - (note: “Sarwa” is the Tswana term for all San people. Lee introduces it here for the cute similarity of the term with “swara”, but it is really just confusing)
- this is a classic structural functionalist explanation
  - complete with Radcliffe-Brown’s “joking” versus “avoidance” relationship rules

- **Wage labor system**
  - people work for pay, rather than producing their own subsistence goods
  - then exchange that income for subsistence goods produced by others for exchange
    - in contrast to **subsistence agriculture**: each family mostly produces food for its own consumption
    - also contrasts with **cash cropping**: each family produces farmed crops for sale
      - often luxuries or non-foods, like artichokes, coffee, cocoa, cotton, tobacco, opium, etc.
      - rather than staple foods that the family would actually consume
      - then uses the income from the cash crops to buy the food they actually consume
- Each subsistence system affects the rest of the culture
  - foragers tend to be (as we saw last time)
    - mobile
    - live in small groups
    - have few possessions
      - thus only minor differences in wealth
    - division of labor mostly by age and sex
    - little occupational specialization
    - minimal social hierarchy of status or power (no one has much power over anyone else)
    - “simple” social organization based primarily on kinship
      - “simple in that there is only one system of relationships
      - without other crosscutting ones like wealth, education, ethnicity, etc.
      - even though the kinship system may be very complex
      - example: Ju/'hoansi
    - but foragers in particularly good environments may not fit these generalizations
  - pastoralists tend to be
– mobile or semi-sedentary
– live in fairly small groups, but often bigger than foragers
– have more possessions than foragers, especially herds
  – since they can become wealthy through successful animal husbandry
  – and have animals to carry additional goods
– their mobility often allows them to profit from trading
– may have large differences in wealth among individuals and families
  – since some peoples’ herds will typically do better than others
– division of labor may be more complex and specialized
  – including traders, slaves, military, etc.
– may develop great social hierarchy of status and power
– so pastoralists tend to have more complex social and economic organization
  – often still based on kinship
  – but also involving rank, such as inherited chiefships
  – class, wealth, age-sets, etc.
  – **age-set**: all the people (usually boys) born in a period of a few years
    – often participate in coming-of-age rituals and other activities as a group
    – feel solidarity with each other, like “SSU class of 2014”
    – common among pastoralists for some reason… maybe due to their focus on animal breeding seasons?
  – example: Ariaal pastoralists
– Note: this is NOT a progression from foragers, to pastoralists, to farmers
– pastoralists may only be possible if farmers are also present
  – and pastoralists may be as socially complex, or more so, than the neighboring farmers
– farmers and agropastoralists tend to be
  – sedentary
  – live in larger groups
  – can accumulate more possessions, including land (which produces further wealth)
    – sedentism allows them to store possessions easily
    – thus may develop large differences in wealth
  – division of labor may be more complex
    – with some people specializing in craft production, ritual services, military service, etc.
    – who are supported by surplus food produced by others
  – more socially complex or hierarchical
    – often have “complex” social organization based on multiple systems, not just kinship
      – such as rank, class, wealth (as in the case of Kapauku), etc.
      – due to the larger numbers of people in contact with each other, and the more varied roles that people may have
  – example: Kapauku Papuans
    – not a very socially stratified or specialized case, though

– Why did people switch from foraging to farming?
– this is a subject for another whole class, like Anth 341 (Emergence of Civilizations) or Anth 325 (World Prehistory)
but here is the rough outline:

- foragers know how plants and seeds work; it is not hard to figure out how to plant and harvest
  - but it is more work per person, so they don’t do it
- but foraging requires a lot of land person
  - swidden agriculture requires less land per person
    - a farmed acre produces more food than an acre of wild foods exploited by foragers
    - more intensive agriculture requires even less
- so if population grows beyond what the land can support by foraging, then a group may have to adopt agriculture
  - farming produces more per acre,
    - even though it produces less per hour of work
  - supports more people in the given area
- in at least some important early cases, it may be not that the population grew, but that the productivity of the land declined out from under them
  - due to climate changes around the end of the Pleistocene (Ice Ages)
  - the effect is the same: too many people for the wild resources to support
- switching to agriculture tends to increase fertility
  - many reasons for this, both biological and cultural, but again, that is for another class
  - bottom line: once people switch to agriculture, their populations tend to rise much faster
  - so they have to keep adjusting methods to more and more intensive agriculture
    - in order to produce more and more food per acre
  - eventually, the door slams behind them; they can’t go back
    - there are too many people to support by foraging
- A long-term look at the energy costs of farming and intensification
  - initially, all of the additional energy input required to farm, rather than forage, was provided directly by people
  - fairly quickly, people started using animals to provide some of the increased energy input
    - animals pulling plows
    - increasing yield by fertilizing with dung, etc.
  - in the last 150 years or so, we have been substituting fossil fuel energy for human and animal energy in agriculture
    - we are still getting ever more food per acre by putting in ever more energy per acre
    - but we are finally getting more food for less work by people
      - this was not true until the late 1800s
    - modern agriculture is extremely intensive
      - it produces huge amounts of food per acre
      - supporting huge populations
    - but the long-run costs of using all this energy to squeeze all this food from this limited land may be high
      - pollution, global warming, the impacts of those very large populations…